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# Concepts, criteria and challenges in evaluating a mix of policy instruments to achieve environmental targets

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## Abstract

This paper discusses an exploratory evaluation of a mix of policy instruments designed to achieve landscape change focusing on biodiversity conservation. The main purpose of the evaluation was to assist the design of the relevant biodiversity programs by providing data and criteria upon which decisions could be made about the mix of instruments that the programs utilised. An existing Policy Instrument Decision Framework was used, and further refined throughout the study.

This paper sets out the process followed in the evaluation, and the set of criteria that were compiled which could be used to evaluate a mix of policy instruments in other situations. The aim of this paper is to further the dialogue regarding approaches, tools and frameworks that can be employed in this complex area. We have not attempted to provide a definitive conclusion, but rather to explore the concepts, criteria and challenges involved in such an endeavour.

## 1. Introduction

### 1.1. Policy instruments

The evaluand for the study described in this paper was a mix of policy instruments. While a policy is a guiding principle or statement of a desired outcome, policy instruments are the means, or interventions used to achieve the policy. These policy instruments can be classified according to how they aim to influence behaviour and can be labelled as: incentives, compliance, informative and empowerment (Alexandra 2002; Allen Consulting Group 2001; Land and Water Australia 2004; Young et al. 1996). The purpose of these categories and examples of each are listed in Figure 1.

A program might use just one instrument (such as education and training), or it could use several instruments (for example, a landscape change program might use on-site extension, an incentive and contracts). In any one catchment or area multiple programs typically use a wide range or mix of policy instruments to achieve their desired policy (or targets).



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All four categories of instruments listed in Figure 1, and all of the examples except for legislative enforcement were considered in this study.

**Figure 1 Types and examples of policy instruments**

| Type of instrument | Purpose and Examples |
|---|---|
| **Incentives** | Aims to alter the benefits and or the costs of managing for biodiversity |
| | ▪ Incentives, subsidies – fixed rate<br>▪ Stewardship payments<br>▪ Assistance (labour)<br>▪ Emission markets (carbon markets) |
| **Compliance** | Aims to modify the set of options available for land management |
| | ▪ Covenants, agreements and contracts<br>▪ Legislative enforcement |
| **Informative** | Aims to alter the priorities and significance attached to biodiversity |
| | ▪ Education and training<br>▪ On site extension (one on one)<br>▪ Information (brochures, media)<br>▪ Best Management Practice Guidelines<br>▪ Community monitoring<br>▪ Consultation<br>▪ Recognition (signage, awards) (e.g. Land for Wildlife Program)<br>▪ Demonstration sites<br>▪ Accreditation schemes (EMS, QA) |
| **Empowerment** | Aims to build capacity and leadership to manage biodiversity |
| | ▪ Participatory action research<br>▪ Peer group learning |

## 1.2. The context of the evaluation

Government and other institutions in Australia are grappling with the question of how to identify the most appropriate mix of policy instruments to achieve change in landscape management on private lands (Land and Water Australia 2004; LWA 2004; Pannell 2006). The literature suggests that there is no one ideal mix of instruments, but rather, these need to be selected and tailored for the particular contexts and desired outcomes. While there have been many evaluation studies of the merit of **individual** instruments, there is a growing recognition that the instruments achieve greater outcomes when applied sequentially or concurrently and thus should be thought of as a mix rather than a list of individual interventions.

The Goulburn Broken Catchment Management Authority (GBCMA) in Victoria was established in 1997 to integrate and deliver land and water management programs in the Goulburn Broken catchment. Despite being relatively well resourced, having experienced staff, and over 19 programs in place to achieve its targets for biodiversity conservation, there is agreement among GBCMA staff that at the current rate of landscape change on private land, the CMA will not achieve its biodiversity targets. The



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staff wanted accelerated progress towards these targets and were willing to make substantial changes to the instruments they employed to do so.

Recognising the need that organisations like the GBCMA had for a decision making tool to help them choose policy instruments, Leth and Johnson of the Department of Primary Industries Victoria (DPI) developed a Policy Instrument Decision Framework (PIDF) (2003). In 2005, Roberts Evaluation Pty Ltd was commissioned to work together with the GBCMA and the DPI to use and further develop the PIDF to evaluate the mix of policy instruments used in the Goulburn Broken Catchment.

### 1.3. The Policy Instrument Decision Framework

The Policy Instrument Decision Framework (PIDF) is a relatively new framework which provides broad guidance on aspects to consider when reviewing and selecting a new policy instrument (Leth & Johnson 2003). The framework includes four main stages:

1. Scoping the issue. In this stage the priority issues need to be clearly defined in terms of environmental, economic, social and political perspectives
2. Reviewing the current situation. This stage involves an evaluation of how well the current instruments are achieving the desired level of outcome. The effectiveness, efficiency and equity of the instruments are also considered as are matters of context such as causes of market failure and adverse effects caused by instruments
3. Selecting a new policy instrument if needed
4. Designing the new instrument.

The PIDF is valuable in that it outlines the elements to consider before introducing a new instrument into an existing mix. However, in order to evaluate an existing mix, further thinking was required in terms of aspects of a mix that could be evaluated, and criteria that could be used to do so. How this was addressed is explained in the sections below.

## 2. The evaluation strategy

In the study we followed steps one, two and three of the PIDF. However, in this paper we focus on the methods used to carry out **steps two and three** as these are the steps of most relevance to the evaluation society. In order to evaluate how the current instruments were achieving desired outcomes, and whether a new instrument was needed, we took the following steps:

1. Identified the current mix of instruments being used
2. Conducted a literature review to identify criteria and methods to evaluate a mix of instruments
3. Collected and analysed data
4. Identified gaps, and developed recommendations.



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## 2.1. Identify the current mix of policy instruments

In accordance with the parameters of the study, we focused on only those instruments being used to achieve change in biodiversity conservation on **private lands**, and excluded instruments that were **not within the influence** of the GBCMA (such as regulation and property rights). As Owen and Rogers note, all evaluations have to take on pragmatic principles that affect the design (1999). After examining 19 programs, we found 15 different instruments in this category.

From CMA records and interviews with the managers of these programs, we identified the investment allocated to particular instruments. This helped to clarify the total range of instruments being used, which were more favoured (that is, used by the most number of programs, and most resourced within the programs), and which instruments were rarely used, or not at all. A more detailed assessment was also conducted to identify which instruments were being used to address the biodiversity **targets**, and which instruments were being used to address the **threats** to biodiversity.

## 2.2. Identify criteria and methods to evaluate a mix of policy instruments

To evaluate the existing mix of instruments, we developed the following three evaluation questions:

1. *Were the instruments appropriate for the ecological, social, economic and logistical context?*
2. *Were the instruments being used sequentially or concurrently to have a positive impact on each other, or were they having a negative impact on the ability of other instruments to achieve an outcome?*
3. *Was a change needed in the relative effort or resourcing into specific instruments within the existing mix*[1]*?*

To assess *focus question 1* - whether the instruments were appropriate for the ecological, social, economic and logistical context, we needed to identify what it was about these contexts that was significant. This was done by drawing on a review of national and international literature, our understanding of a theory of practice change approach for natural resource management, and consideration of the triple bottom line. The result was the development of a set of criteria that can be used to review, and clarify thinking about a mix of policy instruments in any geographical context. The topic areas for these criteria are listed below. These criteria were compiled and adapted from work by the following authors: (Boxelaar & Paine 2005; Cocklin & Dibden 2005; Comerford 2004; Dalton et al.

[1] A further possibility that was explored was how the instruments were being delivered (such as were the engagement techniques appropriate for the targeted audience). While conducting the assessment, we collected data on areas of program implementation that interviewees believed could be improved. These data were provided to the client, but are not discussed further in this paper.



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2005; Lactacz-Lohmann 2001; OECD 1999; Pretty & Smith 2004; Standing 2005; Young et al. 1996).

**Ecological** context including:

- Urgency or need for security. Where there is danger of irreversible loss of biodiversity, the dependability of the instrument becomes the most important factor.
- Matching the instrument to the scale of the ecological problem. Some instruments are more appropriately used (given the costs to run them) at a local scale.
- Where a strategic approach is needed, instruments should be used that allow for this level of control.
- The instruments should be appropriate to the level of understanding of the ecological issue at hand. Some instruments have a higher risk of failure if the problem is poorly understood.

**Social and economic** context including:

- addressing landholders' perceptions of biodiversity, and skills and knowledge to manage biodiversity
- addressing landholders' physical capacity
- building landholders' confidence and positive identity
- building community capital (i.e. networks, relationships and groups, customs and norms, and trust between stakeholders)
- level of community acceptance of the instruments
- economic motivation to catalyse new behaviour
- effort required of landholders to participate is minimised
- instruments are in place which not only halt existing biodiversity loss, but also ensure that resources are appropriately managed to conserve biodiversity through ongoing management
- innovation is supported

**Logistical** context

- security of funding for the organisation delivering the instrument. Some instruments are delivered over a longer period of time which may not appropriate for some organisations.
- separate instruments are used for each threat and target to allow the mix of instruments to be more easily adjusted over time.

A modified form of **stakeholder analysis** was carried out by the evaluators which involved a brief overview of the data available on the age, skill and education level, socio economic situation, industry types, farming styles, and patterns in land ownership etc of the target audience. An assessment was made as to whether the instruments were aligned to the characteristics and trends of the targeted stakeholders, and if not, to determine the implications for the mix of policy instruments.



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To address *focus question 2*, namely, whether the instruments were having a positive or negative impact on each other, an additional criterion was developed relating to synergy between the instruments.

Addressing *focus question 3* required consideration of several factors including:

- priorities and values of the GBCMA and
- results of the assessment against the ecological, social, economic and logistical criteria, and the stakeholder analysis.

The priorities and values of the GBCMA were critical because ultimately, the selection of a mix is a subjective process dependent on the values of the decision maker. For example, an ideal mix for a government stakeholder might include a mix of instruments that provides the most **cost effective** way of achieving the desired outcome. While for a community member, an ideal mix might include instruments that **empower** the community to mange the changes in a time-frame and manner that they deem appropriate. The underlying value inherent in this evaluation was that an ideal mix would include instruments that achieved the desired landscape change in an **accelerated manner**. This meant that the instruments that achieved change more directly were prioritised.

Ideally a **cost-benefit analysis** would also have been used to compare instruments that contributed towards similar outcomes. However this was not possible for this study for several reasons:

a. There was very limited information on the outcomes achieved using the various instruments and our study did not have the resources or timeframe to collect this data.
b. Where output or outcome data did exist for a program, it was difficult to attribute back to individual instruments, as often a program would use a combination of instruments. For example an incentive scheme may use several instruments including: extension, incentives and often the threat of potential regulation to achieve an outcome.

The next step in the evaluation was to collect data on how the current mix of instruments in the Goulburn Broken catchment addressed these criteria, and to identify relevant characteristics and trends from the analysis of the targeted stakeholders.

### 2.3. Data Management

Qualitative data were collected from a range of stakeholders with relevant expertise and experience on how the current mix of instruments addressed the criteria for an ideal mix. In-depth interviews were conducted with program managers, extension staff, landholders involved in programs, landholders not involved in programs, and partner organisations such as local government. In answering how well the criteria were being met, the stakeholders were asked to consider the trends in the socio-economic characteristics of the targeted stakeholders, and to assess whether the mix catered for these characteristics and trends.



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Data were also collected from the literature to add to that being collected from the stakeholders, to make an assessment on how well the criteria were being met.

### 2.4. Identifying gaps and developing recommendations

Identifying specific changes required to the mix of instruments involved considering the priorities and values of the GBCMA (namely to accelerate progress), identifying gaps in how the current mix of instruments addressed the criteria for an ideal mix of instruments, and the implications of the stakeholder analysis.

Recommendations were made by the evaluators and reviewed by many of the stakeholders involved in the evaluation, and the steering team for the project.

**Summary of findings**

*What was the current mix of instruments being used and was a new instrument needed?*
The assessment found that in the Goulburn Broken catchment, the full suite of possible policy instruments discussed in the literature were already being used to address threats to biodiversity and to achieve their biodiversity targets. From this we concluded that there was no need to introduce a **new** instrument.

*Were the instruments appropriate for the ecological, social, economic and logistical context?*
The evaluation found that the instruments were appropriate for the ecological and logistical context. However, there were a number of gaps between the current mix and the ideal mix for the social and economic criteria. For example, the instruments being used were not matched to the level of urgency required to achieve the biodiversity targets.

The stakeholders indicated that there were significant changes taking place in the ownership of private lands (this was confirmed by the literature review) which impacted on the value placed on various instruments. For example, the average age of farmers was increasing, as was the proportion of lifestyle farmers. This led to the stakeholders placing an increased value on providing labour support as an instrument to achieve change.

*Were the instruments being used sequentially or concurrently, to have a positive impact on each other, or were they having a negative impact on the ability of other instruments to achieve an outcome?*
The instruments were having a positive impact on the success of other instruments in the mix. No instrument was identified as having a negative impact. However, the study found that there were opportunities for instruments to be used concurrently or sequentially. For example, it was recommended that demonstration sites were increasingly used to break down the stigma of conservation covenants.



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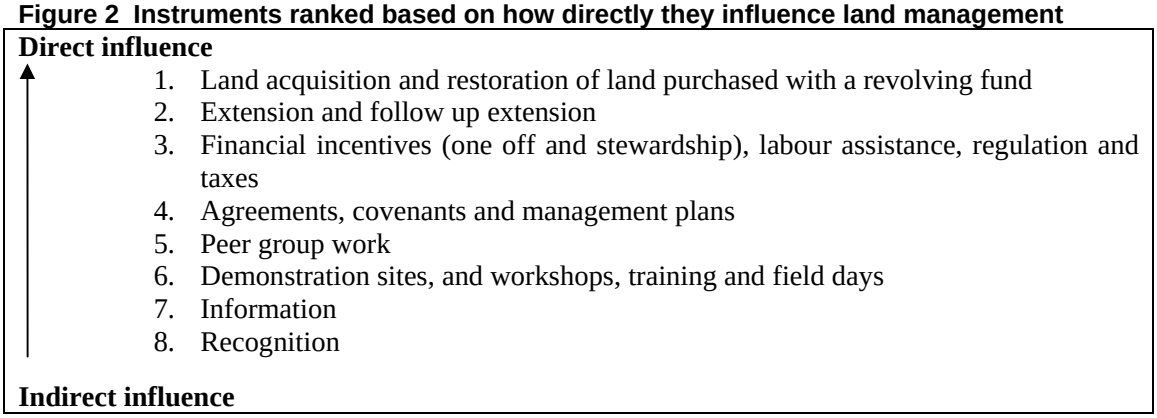
*Was a change needed in the relative effort or resourcing into specific instruments within the existing mix?*

As the primary objective for the study was to accelerate landscape change, we ranked the instruments based on how directly they accelerated or achieved change (see Figure 2). This ranking was based on the literature and input from the project steering team. It is recognised that this ranking is still a list and does not deal with proportion or weighting assigned to individual instruments. However, it does address the acceleration issue and provides a basis for ongoing work on the mix.

**Figure 2 Instruments ranked based on how directly they influence land management**




While we focused on the need to accelerate landscape change as the primary objective in reviewing the mix, we also considered which criteria were not being met, and the implications of the trends in stakeholder characteristics.

Recommendations were made regarding changes needed to the existing mix of methods to increase the scale of works conducted, and the number of landholders conserving and restoring biodiversity. It was also recommended that specific (and different) instruments be increasingly used to increase the **extent** of vegetation, and the **quality** of the vegetation protected to accelerate progress towards the biodiversity targets. However, this study was exploratory, and did not include a comparison of the cost effectiveness of different instruments. Consequently, a central recommendation was that before making major adjustments to the relative investment in particular instruments, the results of the evaluation should be used in conjunction with a cost-benefit analysis.

## 3. Further considerations

The process we followed for this study was determined by the resources and time allocated for the evaluation. In an ideal situation, we would consider making the following changes.

1. The stakeholders would be facilitated to work with the evaluators to use and rank the criteria to more comprehensively define what they believe an ideal mix would be in



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their context, and to clarify the resulting trade offs. For example, in the quest for more direct instruments to accelerate change, what does this mean for how they approach community engagement and empowerment?

2. The process we used involved participation by some of the key stakeholders in the design of the study, the data collection and reviewing the analysis and recommendations. It would also be beneficial to involve a steering team in assessing the data to help identify changes needed to the mix. While we were fortunate that there was broad support for our recommendations, in more controversial cases, having a more participative process could help guarantee support.

However, in recommending a more participative approach, it is important to be aware that often in studies of this nature, the client is seeking a new perspective. A balance between a participative approach and gaining fresh insights can be achieved by combining the participative processes with input from the literature, opinion from experts from outside the clients existing networks, and guidance from the evaluators.

This study should be seen as an interim step in the development of the program and the mix of methods. Ideally more work would be done on the theories of change for the individual instruments and from there a theory for the mix itself. However, this is a complex process with many facets to consider. The biodiversity targets address questions of quality and extent, there is the triple bottom line considerations and the priorities of the CMA itself. Data is still required on the effect of instruments on each other. In addition, it would be highly recommended that a cost benefit analysis is conducted to compare instruments that deliver similar outcomes.

What we did find useful was the stakeholder analysis in helping to assess the alignment between the characteristics and trends in the target stakeholders and also in the mix of instruments. However, a consideration in using a stakeholder analysis to select a mix of instruments is that in some cases, achieving the desired outcomes does not have to depend solely on the existing land managers.

## 4. Conclusion

In summary, the Policy Instrument Decision Framework is a useful tool in that it provides a broad outline of elements to consider in reviewing a mix of policy instruments. To apply it to a given situation however, requires the development of criteria with regard to the ecological, social, economic and logistical context and this study provided that opportunity. In applying the criteria we were able to provide more direction on the mix or priority of instruments. However, to develop a more definitive guide about the mix of instruments, more work remains to be done, foremost of which are a cost benefit analysis and a development of a relevant theory of change.



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## References


Alexandra, J 2002, *Landscape Change in the Goulburn Broken Catchment - Final Report*, Goulburn Broken Catchment Management Association.

Allen Consulting Group 2001, *Repairing the Country: Leveraging Private Investment*, Melbourne.

Boxelaar, L & Paine, M 2005, *The social dimensions of on-farm change to improve water quality and biodiversity*, Dairy Australia, Melbourne.

Cocklin, C & Dibden, J 2005, *Sustainability and change in rural Australia*, University of New South Wales Press Ltd, Australia.

Comerford, E 2004, *Choosing between incentive mechanisms for natural resource management – a practical guide for regional NRM bodies in Queensland*, Queensland Department of Natural Resources and Mines.

Dalton, C, McKee, J, Warwick, M & Pullen, L 2005, 'From devolved grants…to babysitting. Broadening the horizon of incentives', paper presented to AARES Conference.

Lactacz-Lohmann, D 2001, *A policy decision-making framework for devising optimal implementation strategies for good agricultural and environmental policy practices*, OECD, Paris.

Land and Water Australia 2004, 'Making the connections that build sustainability in natural resource management', viewed 30 July 2006, <http://www.lwa.gov.au/downloads/publications_pdf/PR040805.pdf>.

Leth, M & Johnson, F 2003, *Selecting policy instruments to drive change in natural resource management', Milestone Report: Market Mechanisms to Drive Water Use Efficiency in the Irrigated Dairy Industry of Northern Victoria*, Department of Primary Industries, Victoria.

LWA 2004, 'Making the connections that build sustainability in natural resource management', viewed 30 July 2006, <http://www.lwa.gov.au/downloads/publications_pdf/PR040805.pdf>.

OECD 1999, *Handbook of incentive measures for biodiversity – design and implementation*, OECD Publications, France.

Owen, J & Rogers, P 1999, *Program Evaluation*, Allen & Unwin, St Leonards, NSW.

Pannell, DJ 2006, 'Public benefits, private benefits, and the choice of policy tool for land-use change', viewed 30 July 2006, <http://www.general.uwa.edu.au/u/dpannell/dp0601.htm>.

Pretty, J & Smith, D 2004, 'Social capital in biodiversity conservation and management', *Conservation Biology*, vol. 18, pp. 631-8.

Standing, N 2005, 'Incentive design - what is happening internationally', paper presented to Nature Conservation Incentives Forum, Melbourne.

Young, M, Gunningham, J, Lambert, J, Howard, B, Grabosky, P & McCrone, E 1996, *Reimbursing the Future – an evaluation of motivational, voluntary, price-based, property-right, and regulatory incentives for the conservation of biodiversity. Biodiversity Series, Paper No. 9.*, Biodiversity Unit of the Department of the Environment, Sport and Territories.




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