



## Intermediaries in environmental offset markets: Actions and incentives

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### ABSTRACT

Transaction cost theory and application tells us that when buyers and sellers in a market incur transaction costs, intermediaries may become involved. Specifically, intermediaries influence the cause of the transaction costs to buyers and sellers such that transaction costs are reduced. In this paper we assess if and how this occurs for a number of case study government created and private emergent intermediaries in Australian environmental offset markets. We find that the causes of transaction costs to buyers and sellers in offset markets – asset specificity, uncertainty and transaction frequency are influenced downwards by intermediaries. The degree of influence depends on the nature of the good traded in the offset market. We also assessed if the public intermediaries studied were operating in the offset markets to reduce the incidence of probity hazard (poor transactions) from private intermediaries. We found that this was not the case.

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### Introduction

Privately owned land can be used for a range of purposes including housing, agricultural production or privately managed natural areas. Individual land use and management decisions affect the environmental quality on individual parcels of land and surrounding landscapes. For some land there is a financial incentive for development. This can have significant negative environmental impacts on that and surrounding land (Buxton et al., 2006).

An offset is a policy instrument that can be used to ensure that those developing land manage resultant impacts on the environment. Similar to a marketable permit (Hahn and Hester, 1989), an offset requires a specified level of environmental impact management to be achieved for a development but facilitates operational flexibility and cost minimisation in achieving the specified environmental impact. A land developer who creates negative environmental impacts can meet a specified impact target through activities that create positive environmental impacts on another

of their own sites (first-party offset), or they can pay another landholder to undertake the mitigation activities (third-party offset). We concentrate on third-party offsets in this paper (hereafter referred to as offsets).

Under perfect information and no uncertainty an offset transaction involves three parties. The first-party is the land developer who requires offsets to meet development approval conditions (the buyer). The second-party is the government agency (the policy administrator) who, through the development approval process, ensures that developers create or purchase offsets and verifies, monitors and enforces the supply of offsets over time. The policy administrator is significant to an offset transaction because the buyer essentially purchases a promise to produce conservation from the seller. The burden to ensure that the promise is realised through time is usually borne by the policy administrator.<sup>4</sup> The third-party to an offset transaction is the party, separate to the developer, who supplies the activities that generate the offset (the seller). In the real world environment of imperfect information and uncertainty the offset market often involves an additional party

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<sup>4</sup> In practice the legal onus of correctly complying with regulations may reside with either the buyer (eg offsets under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*) or the seller (as is the case for Queensland, NSW and Victorian government offset schemes). For clarity in this paper we assume the obligation resides with the offset seller and is supported by a management plan and enforced through a contract (usually noted on the title of the land) between the supplier and the policy administrator.

who provides specialised and strategic information which assists in offset finalisation and/or through brokering offset exchanges. We refer to these additional parties as intermediaries. Intermediaries help to mediate the imperfect information and uncertainty present in offset markets.

Intermediaries may be created by the policy administrator as an integral part of the market design or emerge independently. The intermediaries that are created tend to operate under a fee-for-service but not-for-profit framework whilst there is a range of for and not-for-profit emergent intermediaries. Regardless of whether the intermediaries are created or emergent, the operation of all intermediaries is bounded by the regulatory framework of the overarching offset policy or policies.

Despite their prevalence, very little has been written that links intermediaries in offset markets to theory. Broader literature on intermediaries in financial markets (Pollock et al., 2004), technology trading markets and other environmental markets (Gangdharan, 2000; King and Kuch, 2003; Stavins, 1995a, b; Woodward and Kaiser, 2002; Woodward et al., 2002) all suggest that intermediaries occur due to transaction costs and because they can reduce the transaction costs to the trading parties. This literature does not detail the role that intermediaries play in influencing transaction costs of offset buyers and sellers. The purpose of this paper is to use transaction cost theory to understand the presence and role of intermediaries in offset markets. We do this by focussing on if and how the intermediaries reduce the cause of the transaction costs to offset buyers and sellers.

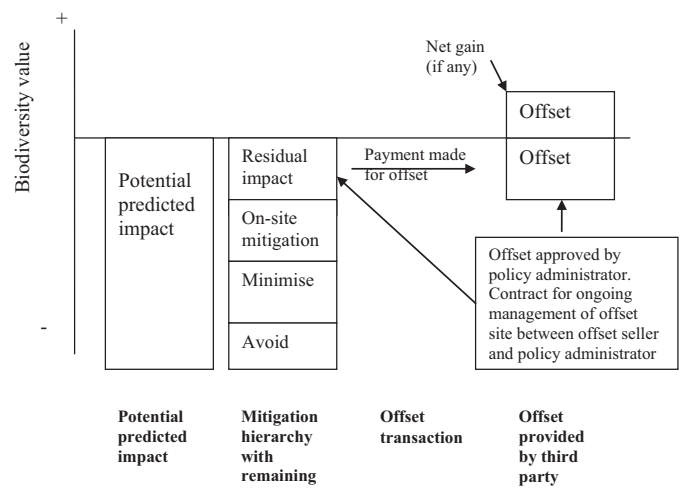
This paper contributes to an increasing literature available on transaction costs incurred in developing and implementing environmental policies (Coggan et al., 2010b; Falconer, 2000; Falconer and Saunders, 2002; Howitt, 1994; Kuperan et al., 2008; McCann et al., 2005; Mettepenningen et al., 2009; Rorstad et al., 2007; Vatn et al., 2002) and to the literature that discusses intermediaries in markets in general (Benassi and Di Minin, 2009; Gangdharan, 2000; King and Kuch, 2003; Pollock et al., 2004; Stavins, 1995a, b; Woodward and Kaiser, 2002; Woodward et al., 2002).

The paper is structured as follows. The concept of offsets and the type and role of intermediaries in offset markets is introduced in the background section. Transaction cost economics as a way of understanding the presence of intermediaries is discussed in the section titled understanding the presence of intermediaries, a transaction cost approach. This section is used to develop a series of questions which are analysed through a number of case study intermediaries introduced in the case study section. Key findings from the case study analysis are presented in the analysis and discussion section and conclusions presented in the conclusion section.

## Background: offsets and intermediaries

### What is an offset?

An offset is an environmental policy tool used to ensure a specified level of an environmental good or service provision is achieved (usually in development impact mitigation) whilst facilitating flexibility in how this is achieved (Coggan et al., 2010a; McKenney and Kiesecker, 2010; Ten Kate et al., 2004). As opposed to 'conventional' environmental harm mitigation actions, offsets allow for mitigation to take place at a location that is spatially removed from the impact site.<sup>5</sup> Offsets have emerged because



**Fig. 1.** The mitigation hierarchy and the hypothetical biodiversity offset. Source: Adapted from Crowe and ten Kate (2010).

of heterogeneity between the costs, ability and confidence of producing equivalent environmental outcomes on different sites, and in particular because of the opportunity cost of reducing the environmental impact of development on development sites compared to alternative sites. Specifically, some developers can only make environmental gains at relatively high cost on their own sites compared to the costs of other landholders or sites where environmental gains can be achieved. Offsets allow the party facing relatively high costs to remediate environmental harm by contracting and paying another party with lower costs to conduct compensatory actions on their behalf.

The concept of third-party offsets is illustrated in Fig. 1. In this hypothetical offset the initial potential predicted impact of development is first reduced via actions to avoid or minimise damage, and is partially mitigated by on-site activities. The residual impact is then offset by a third-party seller approved by the policy administrator. The seller receives some form of financial benefit to place their land under a conservation agreement and conduct actions as per an agreement with the policy administrator. In the hypothetical offset presented in Fig. 1, the offset is sufficient to overcome residual impacts and provide a net gain in biodiversity value. To date, many on-ground offsets have failed to achieve even the no net loss outcome (Harper and Quigley, 2005; Matthews and Endress, 2008; Race and Fonseca, 1996; Salzman and Ruhl, 2000). This highlights the need for careful management of offset design and delivery by the policy administrator in order to be confident of delivering a no net loss or even a net gain from the offset.

The use of offsets to flexibly manage the impact of development on the environment is not new. Over the last thirty years, offsets have been used to manage the impact of development on wetlands (Bayon, 2008; Race and Fonseca, 1996; Shabman and Scodari, 2004); endangered species habitat (Fox and Nino-Murcia, 2005); and fish habitats in the US and Canada (Harper and Quigley, 2005; Matthews and Endress, 2008). In Australia, offsets have recently been introduced to manage the impacts of development on native vegetation, iconic species habitat, biodiversity and marine fish habitat in the states of Victoria, New South Wales (NSW)<sup>6</sup> and Queensland (Queensland Government, 2008). In early 2007 the Australian Government amended the *Environment Protection and*

<sup>5</sup> Offset policy processes almost always include a requirement that all reasonable steps to avoid or minimise impacts are taken before an offset is allowed. These steps are discussed at length by Crowe and ten Kate (2010) which refer to this process as the mitigation hierarchy.

<sup>6</sup> More information on offsets in these states is available on the Victorian Department of Sustainability and Environment (DSE), website: [www.dse.vic.gov.au](http://www.dse.vic.gov.au) and NSW Department of Environment and Climate Change (DECC), website [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au).

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