Land Use Policy 64 (2017) 186–199

Contents lists available at ScienceDirect

Land Use Policy

journal homepage: www.elsevier.com/locate/landusepol

Safeguards for enhancing ecological compensation in Sweden

Niak Sian Koh*, Thomas Hahn, Claudia Ituarte-Lima

Stockholm Resilience Center, Stockholm University, Sweden

ARTICLE INFO

Article history:
Received 28 October 2016
Received in revised form 24 February 2017
Accepted 28 February 2017
Available online 8 March 2017

Keywords:
Biodiversity safeguards
Social safeguards
Mitigation hierarchy
Social-ecological systems
Biodiversity leakage
Convention on Biological Diversity

ABSTRACT

Ecological compensation (EC) is being explored as a policy instrument for the European Union's 'No Net Loss of Biodiversity and Ecosystem Services' initiative. EC is commonly associated with the Polluter-Pays Principle, but we propose the Developer-Pays Principle as a more comprehensive principle. Safeguards that are relevant to local and national contexts are needed when addressing social-ecological resilience in the face of risks associated with EC. The operationalisation of EC in Sweden is assessed through two case studies: the E12 highway and Mertainen mine. The institutional design and implementation procedures are investigated through semi-structured interviews as well as an analysis of legal and other written documents. Using a multi-level governance framework, we examine four key disputed issues within compensation. Our results suggest that (i) Risk of a license-to-trash can be minimised; (ii) Complementary quantitative and qualitative ecological valuation methods are needed to achieve additionality and No Net Loss; (iii) Compensation pools may be a promising strategy to secure land availability; and (iv) Social safeguards are vital for EC in high-income countries as well, where they are currently understudied. We conclude that EC cannot be the main instrument for nature conservation, but rather complementary to a strong legal framework that protects biodiversity and ecosystems in addition to the sustained and equitable benefits of ecosystem services.

1. Introduction

Within the European Union (EU), 86,000 ha of green areas are converted to developments annually (Conway et al., 2013). This has prompted the 'No Net Loss (NNL) of Biodiversity and Ecosystem Services' policy, where ecological compensation is one of the policy instruments considered (European Commission, 2014). Legislation for ecological compensation is clearly defined in the EU for Natura 2000 areas; however, outside these protected areas the compensation legislation is ambiguous and varies substantially between Member States (eftec et al., 2010a).

Ecological compensation is understood as 'the substitution of ecological functions or qualities that are impaired by development' (Cuperus et al., 1999). It includes an array of approaches, with varying degrees of 'market' involvement (Hahn et al., 2015). We use the term 'ecological compensation' (EC) rather than 'biodiversity offsets,' as the former is regarded as a broader term encompassing a range of measures to recompense (Conway et al., 2013). The rationale of this instrument is not only to compensate for ecological losses but also to slow down development on the most valuable green areas, as such projects would be more costly to compensate. Hence, NNL and EC are strategies to halt biodiversity loss while still allowing a dynamic economic development.

Existing EC policies globally result in approximately 187,000 ha of land placed under some form of conservation protection each year (Madsen et al., 2011). The Convention on Biological Diversity (CBD) has also noted EC as a Biodiversity Financing Mechanism (BFM)[1] and this has caused some controversy (Schultz et al., in review). In order to account for the social and biodiversity opportunities and risks associated with BFMs, the CBD Secretariat developed voluntary guidelines for safeguards based on a stakeholder dialogue process. Safeguards refer to 'measures for maximising the protection of biodiversity and people's livelihoods while minimising negative impacts' (Ituarte-Lima et al., 2014). These guidelines were adopted in 2014 by the 12th Conference of the Parties (see Box A1 in Appendix A), which also urged Parties to consider undertaking a review and assessment of existing legislation and policies governing BFMs.

The idea of compensation and offsets involves commodification (Hahn et al., 2015) and value clashes (Sullivan and Hannis, 2015); many programs have been criticized for being unsuccessful in meeting their ecological goals whilst posing additional social risks (Brown and Veneman, 2001; Gibbons and Lindenmayer,

* Corresponding author. Tel.: +467 2398 6086.
E-mail addresses: niak.koh@su.se (N.S. Koh), thomas.hahn@su.se (T. Hahn), claudia.ituarte@su.se (C. Ituarte-Lima).

[1] See CBD-COP12 Decision XII/3.

http://dx.doi.org/10.1016/j.landusepol.2017.02.035
0264-8377/

2007; Curran et al., 2014). Despite these risks, EC is presently being developed in several countries, including Sweden. Swedish courts are increasingly employing existing legal provisions that allow for attaching a compensation requirement to the permission. However, the laws are ambiguous and compensation projects are therefore conducted in an ad hoc manner without explicitly requiring the achievement of NNL (eftec et al., 2010a; p. 209).

The purpose of this paper is to analyse four key disputed issues that we believe are crucial for operationalising EC in Sweden: (i) Avoiding a 'license-to-trash', (ii) Availability of compensation land, (iii) Ecological loss-gain methods and (iv) Social safeguards. The first two issues concern the mitigation hierarchy and together with the third issue, they address the biodiversity safeguards. Social issues concern the whole operationalisation of EC, including substantive (e.g. access/tenure rights) and procedural (e.g. participation) safeguards. These four issues have been highlighted as unique and controversial features of EC policy design (Ruhl and Salzman, 2006; McKenney and Kiesecker, 2010; Quétier and Lavorel, 2011; Bull et al., 2012; Gardner et al., 2013). In this paper, we have chosen two case studies with varying degrees of socio-ecological complexity and consequences for distinct groups of people to assess both biodiversity and social safeguards. We use a multilevel governance framework of principles and safeguards to examine the operationalisation of EC in the selected case studies.

2. Theoretical framework and methods

2.1. Multilevel governance, principles and safeguards

International principles, CBD guidelines and general national legislation are key elements of multilevel governance and can be used for framing safeguards in BFMs and ensuring consistency with the CBD and other international obligations (Ituarte-Lima et al., 2014). Box A1 in Appendix A outlines the CBD Guidelines relevant to this study.

The equity principle (Sands and Peel, 2012) is manifested in the third objective of the CBD: 'the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources.' This is enshrined in various international environmental agreements and national legislation. This principle allows considerations of justice and fairness in the establishment, operation and application of environmental policy instruments. Hence, when the CBD promotes EC and other BFMs, they call for a broader governance approach to valuation and financing that does not 'undermine achievement of the Convention's three objectives' (CBD, 2011).

Although social equity also applies to high-income countries, it is not analysed in the same manner as biodiversity-related challenges (eftec et al., 2010b; Conway et al., 2013; Tucker et al., 2013). In an attempt to overcome this bias, we emphasise equity by considering the distributive equity dimensions of the equity principle and its link to the definition of ecosystem services (McDermott et al., 2013). When assessing the equity principle in relation to 'NNL of ecosystem services', there is a need to disaggregate the broad definition of ecosystem services as 'the benefits people derive from ecosystems' (Millennium Ecosystem Assessment, 2005) into specific benefits derived by different sections of society (Daw et al., 2011). This includes those in relatively disadvantaged positions or with differentiated individual and collective rights. The UN special rapporteur on human rights and environment highlights that more research is necessary to understand the differentiated effects of the loss and degradation of biodiversity in different sectors of society, especially the effects on people in vulnerable situations (Knox, 2017).

2.2. Developer-Pays principle and the mitigation hierarchy

The mitigation hierarchy requires developers to avoid, minimise and restore biodiversity impacts before resorting to compensation off-site (BBOP, 2009). This hierarchy is widely endorsed as an operationalisation of EC (Conway et al., 2013; Tucker et al., 2013). Environmental Impact Assessments (EIAs) may provide information for the different steps of the hierarchy, but EIAs do not generally address compensation (see Table 1). The Polluter-Pays Principle (PPP) is often used as a principle to justify EC (Jenkins et al., 2004; Wende et al., 2005; Tucker et al., 2013). PPP allocates responsibility to the polluter to bear the expenses of ensuring prevention and control measures for a rational use of natural resources. In this original understanding of PPP, measures for reducing (controlling) pollution should be paid for by the polluter, as motivated by international competitiveness (OECD, 1972). An extended version of the PPP obliges the polluter to pay for remaining damage after minimising pollution, e.g. a pollution tax. However, even with this extended PPP, polluters only pay monetary compensation; there is usually no link to restoration. PPP is therefore inadequate as a principle for describing EC, for which biophysical (non-monetary) compensation is crucial.

We conclude from this theoretical analysis that EC (and biodiversity offsets) are based on two principles: (i) the equity principle and (ii) a new principle that we call the "Developer-Pays Principle" (DPP). So far, the few references to DPP in the scientific literature do not relate to EC or biodiversity offsets but mainly archaeological research (e.g. Willems, 2007; Ciuchini, 2010). We propose that for EC, the DPP entails an obligation of the developer to ensure a) identification and legal approval of a suitable location for development; b) minimisation of damage on ecosystems; c) post-impact restoration of ecosystems; and d) off-site compensation of the ecosystem functions and services that could not be restored on-site. Table 1 suggests how the DPP fully captures the entire mitigation hierarchy sequence.

This paper analyses the extent to which the mitigation hierarchy is applied as a biodiversity safeguard. The first step, Avoidance, should ensure that alternative sites are considered and the ones incurring unacceptable damage to biodiversity and ecosystem services are avoided ("no-go areas"). Moreover, if the existence of a compensation project renders authorities to approve a development that they would not have approved otherwise, compensation programs risk becoming a 'license-to-trash' (McKenney and Kiesecker, 2010). This risk is substantial, with evidence suggesting that this has already happened in Sweden (Schultz et al., 2013; Lerman, 2014). It is unlikely that a conservation program

Table 1
A comparison of the Developer-Pays Principle, Polluter-Pays Principle and Environmental Impact Assessment as different principles and tools to operationalise EC.

Ecological Compensation Mitigation Hierarchy	Developer-Pays Principle (DPP)	Polluter-Pays Principle (PPP)	Environmental Impact Assessment (EIA)
Avoidance	Approval of location	N/A	Assessing alternative locations
Minimising impacts	Minimising damage to ecosystems	Controlling pollution	Assessing measures to reduce impacts
On-site restoration	Post-impact restoration	N/A	Assessing post-impact restoration
Off-site compensation for residual impacts	Compensation of ecosystem functions (non-monetary)	Extended PPP (monetary compensation for damage)	N/A