

Linking biodiversity conservation and poverty reduction: de-polarizing the conservation-poverty debate

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Abstract

The published literature leads the reader to expect polarization between conservation and development communities as to the relationship between biodiversity conservation and poverty alleviation. A survey of over 1,000 conservation and development professionals does not, however, support this depiction. Indeed it reveals a surprising consensus of opinion that there is a positive link between biodiversity conservation and poverty alleviation. Where there is some division, is over the direction of that link—conservation as a means to poverty alleviation, or poverty alleviation as a means to conservation—but again conservation and development organizations appear equally divided in their views. Extreme positions often dominate policy debates, hindering progress towards effective, integrated approaches. Our analysis indicates that this may be true of the conservation-poverty debate. Debate is needed not on *whether* conservation and poverty are linked and *whose* role it is to address each agenda but on *how* to develop conservation and development programmes that find integrated solutions to shared challenges. This could greatly inform the process of revising national biodiversity strategies that has recently been started by Parties to the Convention on Biological Diversity (CBD) and which potentially present a real opportunity for linking conservation and development in policy and practice.

Introduction

Tackling biodiversity loss and addressing persistent poverty in developing countries are both stated international goals (United Nations 1992; Millennium Ecosystem Assessment 2005; OECD 1996; United Nations 2000). The policy frameworks that shape international efforts to achieve these goals demonstrate awareness that these are linked, rather than separate, challenges. Thus, within the Convention on Biological Diversity (CBD), there is concern for poverty. The Preamble acknowledges that “economic and social development and poverty eradication are the first and overriding priorities of developing countries” (United Nations 1992); while the first Strategic Plan included a target to reduce the rate of biodiversity loss “*as a contribution to poverty alleviation* [emphasis added] and to the benefit of all life on earth” (SCBD 2002). Similarly, within the Millennium Development Goals (MDGs)

there is concern for biodiversity. The seventh of the eight Goals is “Ensure Environmental Sustainability.” This originally had a sub-target to “reverse the loss of environmental resources” one of the indicators for which was the area of land under protection for biodiversity (United Nations 2001). In 2006, this was updated to include the CBD “2010 Target” with additional biodiversity indicators (United Nations 2008).

While the international script speaks of policy consensus on integrating biodiversity and poverty reduction efforts, national policy is less convincing. A review of Poverty Reduction Strategy Papers (PRSPs) and National Biodiversity Strategies and Action Plans (NBSAPs) in 19 African countries highlighted some cases where the linkages between biodiversity conservation and poverty alleviation had been explicitly addressed. This included both recognition of the role biodiversity plays in supporting subsistence livelihoods and a focus

on biodiversity as a significant contributor to GDP and foreign exchange earnings—particularly through ecotourism (Sandbrook and Roe 2010). Overall, however, analysis of biodiversity-poverty linkages has, to date, been superficial with limited evidence of integrated decision-making or coordination between biodiversity and development sectors in either NBSAPs (Prip *et al.* 2010) or PRSPs (Roe 2010).

This lack of coordination between biodiversity and development sectors is not limited to policy rhetoric. The academic literature reveals well-documented debates as to whether or not there is a link between biodiversity conservation and poverty alleviation, and what the respective roles of conservation and development actors are in addressing each other's agenda (e.g., Roe 2008; Sunderland *et al.* 2008; Miller *et al.* 2011). In some cases the fact that biodiversity conservation and poverty alleviation have not been well integrated has been criticized. For example, conservation scientists have commented that the development community has not paid sufficient attention to biodiversity (e.g., Sanderson & Redford 2003; Lapham & Livermore 2003), while development practitioners and social scientists have suggested that conservation should become more people-focussed (e.g., Short 2003; Kaimowitz & Sheil 2007). In other cases it has been suggested that trying to achieve an integrated conservation-development agenda is futile. For example, a wide body of literature has critiqued Integrated Conservation and Development Projects (ICDPs) and community conservation initiatives. This criticism has been two-pronged: on the one hand tackling poverty has been considered a distraction from a critical conservation mission (e.g., Terborgh 2004; Oates 2006; Salafsky 2011); while on the other hand conservation has been viewed as an ineffective approach to poverty alleviation (e.g., Sandker *et al.* 2009; Romero *et al.* 2012). Meanwhile, others believe biodiversity conservation and poverty alleviation can be achieved simultaneously (e.g., WRI 2005; Kaimowitz & Sheil 2007). Adams *et al.* (2004) summarize the different perspectives that different organizations and/or individuals appear to adopt on the links between biodiversity conservation and poverty reduction in a four-point typology:

1. Poverty reduction and biodiversity conservation are separate policy realms.
2. Poverty is a critical constraint on conservation.
3. Conservation should not compromise poverty.
4. Poverty reduction depends on living resource conservation.

The apparent lack of consensus between conservation and development actors and the consequent persistence of the conservation-poverty debate is problematic.

As Sunderland *et al.* (2008) point out: "it is important to acknowledge the power that such conceptual debates have in shaping policies, institutional programmes, and funding streams for conservation and development." (p. 276). One emerging policy opportunity—which itself is intended to shape institutional programmes and funding streams for conservation and development—is the widespread revision of national biodiversity strategies that was called for by the 10th Conference of Parties (CoP) to the CBD in 2010. It is intended that countries should not just revise their biodiversity strategies but should use these as instruments to integrate biodiversity into national development plans (SCBD 2010a).

This directive appears to bode well for the development of more integrated approaches to biodiversity conservation and poverty alleviation that can recognize, address, and help negotiate, inevitable trade-offs between conservation and development objectives. Yet, the persistence of the conservation-poverty debate could undermine this policy process. It is thus critical to understand if the debate reflects a real divergence in the perspectives and values of conservation and development professionals. If it does, this suggests that efforts to develop integrated policy approaches such as revised NBSAPs are likely to reach deadlock rather than making real progress (van Bueren *et al.* 2003). If, however, there is consensus rather than the conflict that the published literature implies, then the conservation-poverty debate can be dismissed as a distraction to the real task of improving the effectiveness of conservation-poverty integration interventions in policy and practice.

Methods

To investigate the extent to which the documented conservation-poverty debate reflects a real divide between conservation and development actors—and hence an obstacle to constructive policy reform—we conducted a survey of professionals with an interest in conservation and/or poverty reduction. Our objective was to identify the different perspectives that exist on conservation-poverty linkages and the degree of consensus or divergence around these perspectives. We took, as a starting point, the typology of perspectives developed by Adams *et al.* (2004) and, through a process of literature review and focus group sessions expanded this into an eight-point typology (Table 1).

An online survey was sent to individuals directly involved in conservation or poverty reduction activities. The survey population was identified through a purposive sampling approach, collating three existing mailing/participant lists: (a) participants in 2008 World

Table 1 Typology of perspectives on the relationship between conservation and poverty

Perspective	Description
1 Poverty reduction and biodiversity conservation are not linked	This perspective sees poverty reduction and biodiversity conservation as separate policy realms that are—and should be—pursued independently
2 Poverty reduction and biodiversity conservation may be linked but not on our agenda	This perspective acknowledges there may be a link but sees addressing poverty reduction and biodiversity conservation in an integrated way as beyond the remit of the organization concerned.
3 Poverty reduction and biodiversity conservation are negatively linked: conservation activities cause, or exacerbate, poverty	This perspective is common in the conservation-poverty debate and sees conservation interventions—for example protected areas—as having a negative impact on the livelihoods of resident or neighboring communities
4 Poverty reduction and biodiversity conservation are negatively linked: poverty reduction strategies cause biodiversity loss	This perspective holds that the process of poverty reduction/development is a driver of biodiversity loss. Examples include, at the macro-level classic development interventions such as road-building and at the micro-level concern that increasing prosperity can enable individuals to exploit biodiversity more effectively—e.g. replacing handsaws with chain saws—and accelerate biodiversity loss.
5 Poverty reduction and biodiversity conservation are positively linked: biodiversity conservation is dependent on poverty reduction	This perspective holds that poverty is a constraint to effective conservation. For example poor people over-exploit biodiversity because of the lack of alternative livelihood options; or they actively seek to undermine conservation interventions because they restrict their access to critical resources. Poverty therefore needs to be addressed in order to achieve sustainable conservation outcomes
6 Poverty reduction and biodiversity conservation are positively linked: poverty reduction is dependent on biodiversity conservation	This perspective recognizes the disproportionate dependence of poor people on biodiversity and ecosystem services and holds that conserving critical biodiversity and ecosystem services is therefore a tool for poverty reduction
7 Poverty reduction and biodiversity conservation are linked—but there is no generic model	This perspective accepts that there is a link between biodiversity conservation and poverty reduction but that it varies so much from context to context that it is not possible to apply one description to it
8 Other	

Conservation Congress (WCC) ($n = 4701$); (b) individuals on the mailing list of the Poverty Environment Partnership (PEP) (a coalition of development assistance agencies) ($n = 139$); and (c) individuals on the mailing list of the Poverty and Conservation Learning Group (PCLG) (an international network of conservation, development, and indigenous rights organizations) ($n = 262$). Survey participants were asked to identify which of the perspectives in the typology they felt that they, or their organization, were most closely aligned with, or to suggest an alternative perspective. Survey participants were also asked to describe the characteristics of the organizations they represented (Table 2).

We checked the robustness of the typology by analyzing the number of respondents who aligned with one of the perspectives compared to those that selected the “other” category. Once we had concluded that the typology was robust (95 per cent alignment) we ran binomial logistic regressions to determine if there was any significant difference in the organizational characteristics

Table 2 Organizational characteristics of survey respondents

Characteristic	Response option
Perspective(s) organization most closely aligned with	Typology of perspectives described in Table 1
Primary objective of organization	Conservation; development; indigenous/community rights; linking conservation and development; other
Scale of operation	International; regional; national; local
Type of organization	Government; inter-government; United Nations; nongovernmental organization; community-based organization; private sector organization; academic organization
Nature of work	Donor/funder; policy-maker; implementation/practitioner; advocacy; research; other
Location	Developed country; developing country

of the respondents aligning with each of the perspectives in the typology. In particular we were interested to understand if there was a significant divergence in perspective between respondents from organizations where the primary objective (or overarching mission) was conservation and those from organizations where the primary objective was development-oriented—as suggested in the literature.

Results

A 20 per cent response rate was obtained, rendering a total of 1,038 completed surveys. The respondents were not evenly distributed across the different categories of organizations surveyed and the sample was skewed toward conservation organizations (60 per cent). Caution is therefore required in interpreting the results, which should be taken as indicative of trends rather than conclusive evidence. Nevertheless the trends are interesting, as described further.

Respondents Perspectives

The analysis of the different perspectives revealed that the vast majority (95 per cent) of respondents agreed that there is a relationship between biodiversity conservation and poverty reduction. Only 1 per cent aligned with perspective no 1: biodiversity conservation and poverty reduction are not linked while less than 4 per cent thought that any possible link was not of interest to their organization (perspective no 2). There was less agreement, however, on the nature of the relationship. Forty two per cent of respondents thought that, while there was a relationship between biodiversity conservation and poverty alleviation, it varied from context to context (perspective no 7). In particular, a number of respondents commented that the degree to which conservation exacerbates or alleviates poverty depends on how it is implemented. A number of respondents (5 per cent) offered alternative perspectives:

1. Often biodiversity performs a poverty prevention or “safety net” function for poor people rather than a poverty *reduction* function.
2. Biodiversity conservation may not necessarily exacerbate poverty but it can act as a poverty trap whereby poor people are locked into a relationship of dependency with no likelihood of biodiversity being able to lift them out of poverty.
3. Biodiversity loss and poverty are independent of each other but often have common drivers (e.g., governance, macro-economic policy, and demographics).

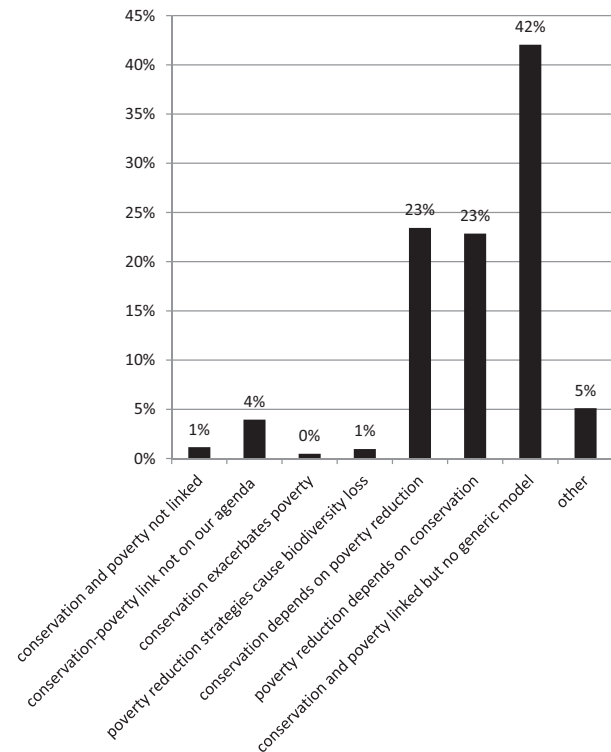


Figure 1 Different perspectives on the link between biodiversity conservation and poverty alleviation (n = 1038).

Of the remaining respondents, very few (1 per cent) thought that there was a negative relationship—either that conservation activities caused, or exacerbated, poverty, or that poverty alleviation interventions resulted in biodiversity loss (perspectives 3 and 4). And 46 per cent of respondents agreed that there was a positive relationship between biodiversity conservation and poverty alleviation but were divided on the direction of this relationship: 23 per cent said successful biodiversity conservation depends on poverty alleviation (perspective 5) and 23 per cent said poverty alleviation depends on biodiversity conservation (perspective 6). Figure 1 summarizes the results.

The descriptive statistics revealed some differences in the response ratios between the different types of organization (Figure 2). The significance of these differences is described later.

Respondents' perspectives and the characteristics of the organizations they represent

The distribution of responses between the different perspectives may be a reflection of the skewness of our survey sample. We therefore ran logistic regressions to

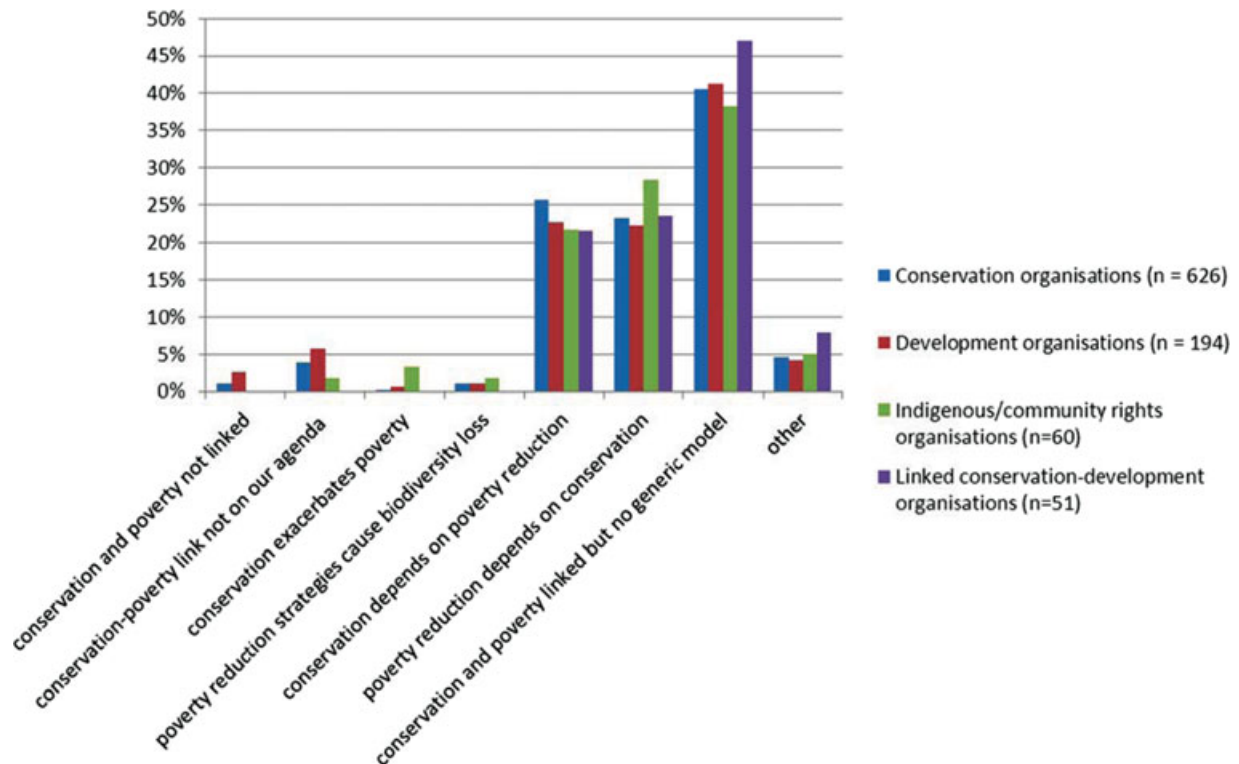


Figure 2 Different perspectives on conservation-poverty links by type of respondent organization.

determine if there was any relationship between the characteristics of the respondent's organizations and the perspectives they adopted. This revealed the following:

1. Respondents from conservation, development, and indigenous/community rights organizations were all significantly more likely to adopt the perspective that there is a positive link between biodiversity conservation and poverty alleviation (perspectives no 5 and 6) than any other perspective.
2. Respondents from organizations working at all scales—from international to local—tended to perceive a positive link between biodiversity conservation and poverty alleviation but the coefficients were not statistically significant.
3. Respondents from all types of organization (e.g., government, NGO, academic) tended to perceive a positive link between poverty alleviation and biodiversity conservation, with those from NGOs, CBOs, and the private sector being significantly more likely to perceive positive links than the others.
4. There was a wide mix of responses when analyzed according to the nature of work (e.g., policy-making, advocacy, implementation) and no response was statistically significant.

5. Respondents from developing countries were significantly less likely to perceive a positive link between conservation and poverty alleviation than respondents from developed countries.

Tables 3 and 4 provide a statistical summary and logistic regression results.

We expanded the analysis to better understand differences between those who adopted the perspective that there is a positive relation between biodiversity conservation and poverty alleviation (perspectives no 5 and 6, $n = 481$). The responses were nearly equally distributed between those adopting perspective 5 (51 per cent) and perspective 6 (49 per cent). However, some differences were revealed when responses were analyzed according to the type of respondent organization (Figure 3 and Table 5). Both conservation and development organizations were more likely to align with perspective no 5 (biodiversity conservation is dependent on poverty reduction) than no 6 (poverty reduction is dependent on biodiversity conservation). Indigenous/community rights organization and linked conservation and development organizations appeared more likely to align with perspective no 6 but this response was not statistically significant.

Table 3 Different perspectives on the link between biodiversity conservation and poverty alleviation: statistical summary ($n = 1,038$)

Variable	Definition	Mean	Std. dev
Positive perspective	1 = if respondent thinks there is a positive link between conservation and poverty alleviation; 0 = otherwise	0.4624277	0.4988267
Conservation	1 = if respondent is affiliated to organization whose primary objective is conservation; 0 = otherwise	0.6030829	0.4894944
Development	1 = if respondent is affiliated to organization whose primary objective is development; 0 = otherwise	0.1868979	0.3900174
Indigenous/community rights	1 = if respondent is affiliated to organization whose primary objective is indigenous/community rights; 0 = otherwise	0.0578035	0.2334839
Links conservation and development	1 = if respondent is affiliated to organization whose primary objective is linking conservation and development; 0 = otherwise	0.0491329	0.2162497
Other	1 = if respondent is affiliated to organization whose primary objective is other than above; 0 = otherwise	0.1030829	0.3042136
International	1 = if respondent is affiliated to international organization; 0 = otherwise	0.5693642	0.4954039
Regional	1 = if respondent is affiliated to regional organization; 0 = otherwise	0.0722543	0.2590334
National	1 = if respondent is affiliated to national organization; 0 = otherwise	0.2861272	0.4521674
Local	1 = if respondent is affiliated to local organization; 0 = otherwise	0.0674374	0.2508988
Other 1	1 = if respondent is affiliated to organization different from above; 0 = otherwise	0.004817	0.0692703
Government	1 = if respondent is affiliated to a governmental organization; 0 = otherwise	0.1319846	0.3386372
Inter-governmental	1 = if respondent is affiliated to an inter-governmental organizations; 0 = otherwise	0.0250482	0.1563468
United Nations	1 = if respondent is affiliated to UN agency; 0 = otherwise	0.0366089	0.18789
NGO	1 = if respondent is affiliated to a nongovernmental organization; 0 = otherwise	0.5404624	0.4986003
CBO	1 = if respondent is affiliated to community based organization; 0 = otherwise	0.0279383	0.1648757
Private sector	1 = if respondent is affiliated to private sector; 0 = otherwise	0.0770713	0.2668331
Academic	1 = if respondent is academic; 0 = otherwise	0.1319846	0.3386372
Other 2	1 = if respondent is different from above; 0 = otherwise	0.0289017	0.1676111
Donor	1 = if respondent is affiliated to donor organization; 0 = otherwise	0.061657	0.2406475
Policy-maker	1 = if respondent is policy maker; 0 = otherwise	0.0867052	0.2815382
Practitioner	1 = if respondent is practitioner; 0 = otherwise	0.4200385	0.4938027
Advocacy	1 = if respondent is affiliated to an advocacy group; 0 = otherwise	0.0818882	0.2743266
Research	1 = if respondent is researcher; 0 = otherwise	0.243738	0.4295434
Other 3	1 = if respondent is different from above; 0 = otherwise	0.105973	0.3079515
Developing	1 = if respondent is affiliated to organization from developing country; 0 = otherwise	0.7119461	0.5579891

Discussion

The conservation and poverty debate implies the existence of two polarized and entrenched camps—both thinking the one is not sufficiently concerned about the other's agenda and that the activities of the one undermine the priorities of the other. This representation is echoed by Miller *et al.* (2011) who describe “the new conservation debate” as being between “nature protectionists”—conservation scientists with a strong preservationist mission—and “social conservationists”—environmentally oriented social scientists and development professionals.

Our analysis, however, does not support this depiction. First, only a small proportion of respondents think that conservation-poverty linkages are not part of their agenda—regardless of the type of organization they represent. Second, while much of the conservation-poverty debate focuses on the negative impacts of conservation

on poor people (e.g., Chapin 2004; Brockington *et al.* 2006) our analysis reveals a broad consensus of opinion that there is a positive link between biodiversity conservation and poverty reduction (although this positive perception was less common amongst developing country respondents). Third, our survey revealed few “nature protectionists” but a majority of “social conservationists” who were split between those that see conservation as the ends with poverty alleviation as the means to achieve it, and those that see poverty alleviation as the ends and conservation as the means. Within these groups there appeared no significant differences in perspectives between conservation and development organizations.

The only statistically significant difference in responses identified in our analysis was that between respondents from developed and developing countries—developing country respondents were less likely to perceive a positive relationship between biodiversity conservation and

Table 4 Logistic regression results

Variable	Primary objective	Scale of operation	Type	Nature work	Location
Conservation	0.67**				
	−0.22				
Development	0.51**				
	−0.25				
Indigenous/community rights	0.72**				
	−0.33				
Links cons and devpt	0.52				
	−0.35				
International		0.16			
		−0.92			
Regional		0.11			
		−0.94			
National		0.45			
		−0.92			
Local		0.41			
		−0.94			
Government			0.41		
			−0.42		
Inter-governmental			0.69		
			−0.55		
United Nations			0.15		
			−0.51		
NGO			0.68*		
			−0.4		
CBO			0.90*		
			−0.54		
Private sector			0.74*		
			−0.45		
Academic			0.11		
			−0.43		
Donor				−0.14	
				−0.32	
Policy				0.2	
				−0.28	
Practitioner				0.06	
				−0.21	
Advocacy				0.09	
				−0.29	
Research				−0.35	
				−0.23	
Developing					−0.80***
					−0.14
Constant	−0.72***	−0.41	−0.69*	−0.11	0.41***
	−0.21	−0.91	−0.39	−0.19	−0.12

Dependent variable = positive link; $n = 1,038$; standard error in parenthesis. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

poverty alleviation. Our survey did not set out to explore *why* respondents hold particular perspectives and this would be interesting to follow up. It is possible to conjecture that this difference between positive and negative attitudes could be related to the closer proximity of developing country respondents to efforts to implement conservation and poverty alleviation strategies on

the ground, and their greater recognition of inherent trade-offs that must be negotiated in practice. Similarly the apparent similarities between the perceptions of conservation and development professionals, and their tendency to perceive a positive relationship between biodiversity and poverty, could be a result of optimism bias or of alignment with policy rhetoric. Indeed, there are a

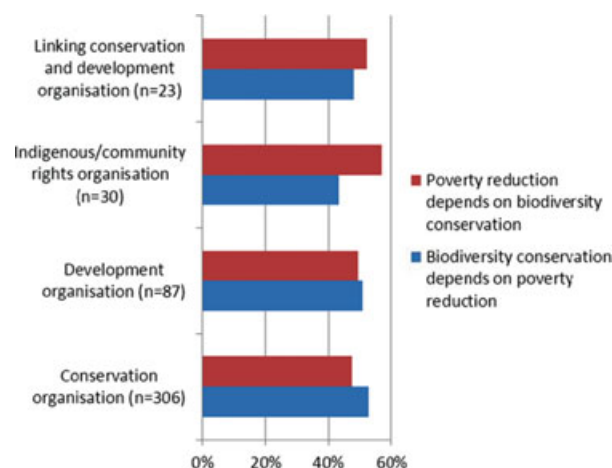


Figure 3 Is biodiversity conservation dependent on poverty alleviation or vice versa?

Table 5 Is biodiversity conservation dependent on poverty alleviation or vice versa? Logistic regression results

Variable	Coefficient	t-statistic
Conservation	0.833**	2.77
Development	0.667*	2.00
Indigenous/community rights	0.608	1.43
Linking conservation and development	0.603	1.35
Constant	-1.894***	-6.61

Dependent variable: alignment with perspective 5; * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$; $n = 481$.

multitude of biases that influence the way people think, the values they hold and the judgements they make. These include past experience, professional background, and various cognitive biases (e.g., see Sheil and Meijaard 2010). Surveys in particular are prone to various forms of response bias (Robson 2002). We took various measures to reduce response bias including non-attribution of responses, avoiding leading questions, and offering “other” as an alternative response. Nevertheless our survey sample was not randomly selected and it may be that those that chose to respond did so because they have a greater interest in integrating biodiversity conservation and poverty alleviation than the broader conservation and development communities and that this explains the positive and consensual nature of the responses. The sample size and the range of different types of organizations represented means, however, that at the very least our survey is able to present an overall picture of the degree of support for different perspectives on conservation-poverty linkages.

Although our survey indicates broad consensus that there is a positive link between biodiversity conserva-

tion and poverty reduction it is also clear that there is no blueprint model. Numerous commentators (e.g., Barrett *et al.* 2011) have also noted the dynamic and context-specific nature of the conservation-poverty relationship. Despite this, the conservation-poverty debate in the literature is all too often characterized by generalities (Redford 2011); by conflation of empirical and normative claims (Miller *et al.* 2011); or by focusing only on one part of a larger and more complex issue (Rangarajan & Shahabuddin 2006).

Overall, our analysis indicates that the polarized conservation-poverty debate that is presented in the literature does not appear to be representative of the majority views of conservation and development professionals. This finding mirrors that from other sectors as diverse as fertility (Hudson 2006), foreign aid (Addison *et al.* 2012) and climate change (Berezow 2011) which have revealed how policy debates are often dominated by extremes which can obscure a more nuanced and consensual middle ground. Consensual middle ground certainly seems to be a better description of our survey results than polarized extremes, and this bodes well for the development of more integrated policy approaches.

But progress in developing effective policy that translates into effective action is constrained by the way the conservation-poverty debate is currently cast. Where we need debate is not on *whether* conservation and poverty reduction are linked and *whose* role it is to address each agenda but on *how* to develop conservation and development programmes that find integrated solutions to shared challenges. Miller *et al.* (2011) suggest policy instruments such as payments for ecosystem services (PES) have real potential. Others have highlighted a number of common principles and lessons that improve the effectiveness of integrated interventions (e.g., Salafsky and Wollenberg 2000; Garnett *et al.* 2007). Such instruments and approaches need to be articulated within a broader policy framework and this is where the process of revising national biodiversity strategies presents a valuable opportunity for moving forward. The first generation of NBSAPs have been widely recognized to have been ineffective tools – both for integrating conservation and development (Swiderska 2002), and for addressing biodiversity conservation on its own (SCBD 2010b). This lack of effectiveness has been attributed to a number of factors including lack of political buy in; lack of stakeholder engagement—particularly of development specialists and local communities; and weak implementation mechanisms (Prip *et al.* 2010). The second generation of NBSAPs are expected to be very different beasts, with a focus on generating a dynamic and adaptive planning process rather than a dry document. As such they present

a real opportunity to become inclusive processes that depolarize the debate and bring conservation and development actors together to address common challenges.

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