

Ecosystems-based adaptation: *Are we being conned?* Evidence from Mexico

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ABSTRACT

This paper scrutinises claims made about the promise and efficacy of ecosystems-based adaptation (EBA), through an exploration of EBA-relevant interventions in two fieldsites in Mexico. Our data starts to fill important gaps in current global debates about EBA. We find evidence of the important contribution of interventions relevant to EBA objectives at a small scale and under very specific conditions. However, the viability of similar interventions is substantially reduced, and arguably rendered null, as an incentive for conservation in a more populous fieldsites. Furthermore, evidence suggests that other adaptation options risked being overlooked if the context were viewed solely through the lens of EBA. We conclude that EBA needs to: a) engage with and address the trade-offs which characterised earlier attempts to integrate conservation and development, and; b) acknowledge the implications for its objectives of a globally predominant, neoliberal political economy.

1. Introduction

Ecosystems-based adaptation (EBA) has been gaining prominence since the mid-2000s (BirdLife International, 2009; World Bank, 2009; Andrade et al., 2010; Munroe et al., 2012; UNEP, 2012). The most common definition of EBA is “the use of biodiversity and ecosystem services to help people adapt to the adverse effects of climate change” (SCBD, 2009, p. 41). EBA is not focussed purely on “biodiversity for its own sake” (Petersen and Holness, 2011, p. 4). This is partly due to the conceptual influence of social-ecological systems thinking, which is antithetical to the study of ecological or social systems in isolation (Gunderson and Holling, 2002; Olsson et al., 2004; Berkes, 2008; Berkes et al., 2008, 2008; Folke and Gunderson, 2012). But it also reflects the effort by international conservation (and development) actors such as IUCN, the UNEP, TNC, The World Bank and others to ensure that biodiversity conservation is not left out of the broader climate change adaptation agenda. This, to date, has been characterised predominantly by a focus on development.

Many claims have been made for what EBA is able to offer the broader climate change adaptation agenda. A widely-cited example of its benefits is mangrove forests, given their capacity to shield coastal

populations from storm surges (i.e. Alongi, 2008), and their potential contribution to food security, health, sustainable water management and livelihood diversification (Mensah et al., 2012). The ostensible virtues of EBA lead Munang et al. (2013) to conclude that it can achieve not just win-win but in fact ‘quadruple-win’ outcomes for: climate change adaptation and mitigation; socio-economic development; environmental protection and biodiversity conservation; and contributing to sustainable economic development. (2013: 68). Others make similar claims to synergy in outcomes (i.e. Bood, 2012; Martínez Alonso, 2010; UNEP, 2012). This framing, like ‘sustainable development’ before it, holds intuitive appeal, some of it derived from the substantial economic value posited for ecosystem services. At the global level, it has been estimated that an annual investment of US\$45 billion in protecting ecosystems could yield US\$5 trillion per year (TEEB, 2010). Costanza et al. (2014) estimated that the total global value of ecosystem services – which they define as the monetised contribution of ecosystem services to sustainable human well-being – had in 2011 reached \$125–45 trillion/yr. It follows from this that one mechanism for leveraging this value could be payments for ecosystem services.

Whilst ecosystems-based adaptation clearly has some enthusiastic and influential advocates, the evidence base around its efficacy in

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practice remains a work in progress; partly because the ambiguities in the term's meaning make it difficult to determine what constitutes relevant evidence (Reid, 2011, 2014). A recent systematic review by Doswald et al. (2014) provides the most comprehensive global overview of EBA to date. At the heart of the paper lies a helpful conceptual distinction between EBA and EBA-relevant intervention. The former specifies interventions explicitly conceived and framed in terms of EBA objectives. The latter identifies a broader range of interventions with the potential to achieve EBA objectives, but not designed or implemented with the stated aim of achieving EBA. Doswald et al. draw this distinction because whilst there is as yet little published work on the results of intervention designed explicitly as ecosystems-based adaptation, there are many existing ways of using ecosystems which could serve adaptation purposes, such as sustainable forest management, integrated coastal zone management. Indeed, the mangrove restoration mentioned above as the best known example of EBA turns out in fact to be EBA-relevant, rather than a 'pure' instance of EBA. The payments for ecosystems services schemes we explore in this paper are likewise more accurately termed EBA-relevant. There is a wider point here about what can be said to constitute an example of EBA. Just like sustainable development, EBA is a concept which expresses an objective, a desirable outcome. As such the only way to study EBA empirically is via the interventions that are explicitly used, or could be used, to serve its objectives. At the level of empirical research, the distinction Doswald et al. (2014) formulate between 'pure' and 'EBA-relevant' is thereby collapsed. It is, though, still useful to retain this distinction for the purposes of conceptual debate about what EBA should comprise and aim to achieve.

Overall, Doswald et al. reach mixed conclusions. Whilst they find some evidence to suggest that EBA-relevant interventions "can be effective in enabling the reduction of vulnerability to certain climate induced impacts" they also contend that "it is difficult to provide any conclusions as to the effectiveness [of EBA] over the long term in a changing climate" (2014: 199). Of particular concern, they report that there is more coverage of hypothetical benefits than empirical evidence of benefits. This evaluation, then, is not exactly a glowing recommendation to match the soaring rhetoric which, at least in some quarters, heralded the arrival of EBA. Yet nor, in our view, is it sufficient to declare the term an oxymoron, as sustainable development was famously branded (cf. Redclift, 2005). The critique of sustainable development (or adaptation; cf. Brown, 2011) as oxymoronic perhaps fails sufficiently to recognise that it is not inherently so: it depends upon what is declared to be sustainable development. This proviso leaves plenty of space for conceptualisations of sustainable development which are not oxymoronic. It is hard to see that implying sustainable development per se is an oxymoron helps us to maintain this vital space. By the same token, it would be unfair to frame EBA from the outset in terms of whether it is oxymoronic; it is not so, in our view, in any *a priori* sense. Nevertheless, the mismatch between such optimistic framings and the more ambivalent empirical experiences documented may lead us to wonder, as John Potter (1997) did of sustainable development, *are we being conned?*

We explore this question through presenting a climate vulnerability analysis of people living in or adjacent to protected areas in the Mexican state of San Luis Potosí. The research was commissioned by Mexico's National Commission for Protected Natural Areas (CONANP). Ultimately, their objective was to improve their capacity to respond to the challenges posed by climate change to Mexican protected areas. Project objectives were framed explicitly in terms of identifying ecosystems-based adaptation options, to be implemented in the existing and nascent protected areas which comprise a new biological corridor across the Sierra Madre Oriental region. The work is thus well placed to make a contribution to filling important gaps in the evidence base and to formulating a more grounded set of expectations around the prospects, locally and globally, for EBA. The research addresses two important gaps.

First, the empirical fieldwork comprised a participatory vulnerability analysis, grounded conceptually in a political ecology framework (Blaikie et al., 2004; Cannon and Schipper, 2014). This approach is under-represented in the literature on EBA to date. In the context of our fieldwork, a political ecology lens serves as a corrective to the tendency of EBA studies to over-report hypothetical benefits. A political ecology approach suggests that EBA outcomes will be better understood not as win-wins but as trade-offs, and we outline the trade-offs visible in our fieldsites. We agree with Doswald et al. (2014) and other EBA commentators (i.e. Pramova et al., 2012; van de Sand et al., 2014; Brink et al., 2016) that the conceptualisation of EBA so far gives insufficient attention to trade-offs (with some honourable exceptions, such as Andrade et al., 2010 or Reid, 2014). We find this surprising, given the rich literature, and substantial body of experience accompanying it which concluded, more often than not, that integrated conservation and development lead more frequently to unpalatable trade-offs than to win-win synergy (Adams and McShane, 1992; Brandon and Wells, 1992; Murombedzi, 1992; Murphree, 1997; Neumann, 1997; Newmark and Hough, 2000; Adams et al., 2001, 2004; Hulme and Murphree, 2001; Brockington, 2002; Brown, 2004; McShane and Wells, 2004; McShane et al., 2011). In addition to foregrounding trade-offs, political ecology turns our focus to the winners and losers that result from the power relations governing resource allocation and access (Forsyth, 2003; Blaikie et al., 2004; Robbins, 2012). These considerations are also relevant to broader adaptation debates beyond EBA. As Eriksen et al. (2015) argue, much climate change vulnerability research continues to foreground analyses of climate hazards, to the detriment of a thoroughgoing engagement with the socio-political determinants of vulnerability.

Second, the prospects for using payments for ecosystem services (PES) as a means of delivery of EBA are sparsely covered in the literature, although recent examples have been offered by van de Sand et al. (2014). Wertz-Kanounnikoff et al. (2011), extrapolating from existing instances of PES, have contributed to the conceptualisation of how PES may meet EBA objectives. They argue that PES can be promising instruments for EBA in certain conditions, and identify four potential synergies: natural adaptation co-benefits; piggy-backing; adaptation-relevant spill-overs from PES schemes; and direct payments for adaptation benefits. As we conducted our research on local level vulnerability to climate impacts, it became increasingly clear that Payments for Ecosystem Services schemes, which were being used in both the field sites we discuss in this paper, might already be providing options relevant to EBA, even though they were not being implemented with EBA objectives explicitly in mind. The key potential contribution to adaptation that we identified is: if PES can contribute to ecosystem conservation whilst providing income locally, there would appear to be potential for it to contribute to EBA objectives effectively *to the extent that* it reduces household dependency on climate sensitive livelihood activities. This is probably closest to the 'piggy-backing' synergy – where adaptation benefits are coincidental outcomes – identified by Wertz-Kanounnikoff et al. (2011), at least in the context of our field sites. The prevalence of PES schemes in our fieldsites, in combination with the project objective of identifying EBA options for CONANP, therefore provided a tailor-made opportunity in which to explore this proposition empirically.

In the conclusion, we deliver our verdict on whether EBA is a 'con', and explore the implications of our findings for the future EBA research agenda. Why, we wonder, do the trade-offs we identify persist both within our fieldsites and far beyond them? An underlying reason relates to the existing priorities associated with a globally predominant neo-liberal political economy (Sklair, 2001; Newell, 2008; Brockington et al., 2010; Newsham and Bhagwat, 2016). We contend that what is still missing in the EBA literature is insight into the implications for its objectives of these existing priorities.

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