

Community Ecotourism for Biodiversity and Rural Livelihoods: Multi-Country Analysis

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Abstract

Community-based ecotourism (CBET) has been widely promoted as a mechanism for reconciling biodiversity conservation with rural economic development, yet empirical evidence of its effectiveness across diverse geographic and institutional contexts remains fragmented. This study presents a comparative analysis of six CBET projects in Nepal, Costa Rica, Botswana, Indonesia, Peru, and Madagascar, examining how each contributes to biodiversity conservation outcomes and rural livelihood enhancement. Employing the Sustainable Livelihoods Framework as the analytical lens, data were collected through document analysis, key informant interviews (n=48), and community focus groups (n=12) conducted between 2022 and 2023. Results demonstrate that CBET projects with strong community governance structures, equitable revenue-sharing mechanisms, and direct linkages between tourism income and conservation activities achieved the most favourable outcomes across both conservation and livelihood dimensions. Botswana and Costa Rica emerged as the strongest performers, benefiting from established institutional frameworks and decentralised resource management. Madagascar and Peru, despite rich biodiversity endowments, faced persistent challenges related to governance capacity, infrastructure deficits, and market access. The findings suggest that CBET success depends less on natural resource abundance than on the institutional and social capital surrounding the tourism enterprise.

Keywords: - Community-based ecotourism, biodiversity conservation, rural livelihoods, sustainable livelihoods framework, community governance, conservation tourism

I. INTRODUCTION

The relationship between conservation and development has occupied scholars and practitioners for decades, with community-based ecotourism emerging as one of the most widely endorsed strategies for achieving both objectives simultaneously (Stronza et al., 2019). The premise is straightforward: by generating economic benefits from wildlife and natural landscapes, CBET creates financial incentives for local communities to protect rather than exploit their natural surroundings (Mbaiwa & Stronza, 2010). When tourism revenue exceeds what could be earned through extractive activities such as logging, poaching, or agricultural conversion, the rational economic calculation shifts in favour of conservation.

This logic has attracted substantial policy support. The Convention on Biological Diversity has endorsed community-based tourism as a mechanism for achieving biodiversity targets (CBD, 2018). The United Nations World Tourism Organization promotes CBET as a pathway toward Sustainable Development Goals 1 (No Poverty), 8 (Decent Work and Economic Growth), and 15 (Life on Land) simultaneously (UNWTO, 2021). National governments across Africa, Asia, and Latin America have incorporated CBET into protected area management plans and rural development strategies.

However, the empirical evidence supporting CBET's dual mandate is mixed. While numerous case studies report positive conservation and livelihood outcomes (Snyman, 2012; Stronza & Gordillo, 2008), others have documented elite capture of tourism benefits, insufficient revenue generation to offset conservation opportunity costs, cultural disruption, and minimal measurable impact on biodiversity indicators (Krüger, 2005; Kiss, 2004). These conflicting findings suggest that CBET outcomes depend heavily on context-specific factors governance structures, community capacity, market conditions, ecological characteristics that vary across projects and countries.

This study contributes to this debate through a systematic comparative analysis of six CBET projects across three continents, using the Sustainable Livelihoods Framework (Scoones, 1998) to assess how each project mobilises and transforms livelihood capitals while contributing to measurable biodiversity conservation outcomes. By comparing projects at different stages of maturity and operating under diverse institutional conditions, the analysis identifies the conditions under which CBET delivers on its conservation-development promise and those under which it falls short.

II. LITERATURE REVIEW

2.1. Defining Community-Based Ecotourism

Community-based ecotourism sits at the intersection of two broader concepts: ecotourism, defined as responsible travel to natural areas that conserves the environment and improves the welfare of local people (Ceballos-Lascuráin, 1996), and community-based tourism, which emphasises local ownership, management, and benefit-sharing (Goodwin & Santilli, 2009). CBET thus involves nature-based tourism enterprises that are owned or substantially managed by local communities, with explicit objectives of both conservation and livelihood improvement.

The degree of community involvement varies widely in practice. Some CBET models involve full community ownership of tourism infrastructure and operations, as seen in several Botswanan community trusts (Mbaiwa, 2005). Others operate through joint venture partnerships between communities and private operators, with negotiated revenue-sharing arrangements (Spenceley, 2008). Still others involve community participation primarily through employment and supply relationships, with external organisations managing the tourism enterprise and distributing a share of profits (Scheyvens, 2002). These governance distinctions have significant implications for both the distribution of economic benefits and the strength of conservation incentives.

2.2. Biodiversity Conservation Through Tourism

The conservation effectiveness of CBET rests on two mechanisms: direct and indirect. Direct mechanisms include habitat protection through land use restrictions, anti-poaching patrols funded by tourism revenue, and species monitoring programmes integrated into tourist activities (Ferraro & Kiss, 2002). Indirect mechanisms operate through the opportunity cost logic: when tourism provides greater economic returns than alternative land uses, communities have economic incentives to maintain natural habitats rather than convert them to agriculture or extract resources (Naidoo & Adamowicz, 2005).

Measuring these effects empirically is challenging. Conservation outcomes operate over long time horizons and are influenced by factors beyond tourism, including climate variability, regional land use change, government policy, and poaching networks. Brockington and Scholfield (2010) argued that most CBET evaluations rely on anecdotal evidence or proxy indicators rather than rigorous biodiversity assessments. More recent studies have begun to address this limitation by incorporating species abundance data, habitat quality indices, and deforestation rates into CBET impact evaluations (Blackman et al., 2015).

2.3. The Sustainable Livelihoods Framework

The Sustainable Livelihoods Framework (SLF), developed by Chambers and Conway (1992) and operationalised by Scoones (1998) and the UK Department for International Development (DFID, 1999), provides a structured approach to analysing how households and communities access and combine different types of capital to construct livelihoods. The framework identifies five capital types: natural capital (land, water, wildlife, forests), human capital (skills, knowledge, health, education), social capital (networks, trust, collective action, governance), financial capital (income, savings, credit, remittances), and physical capital (infrastructure, equipment, housing, transportation).

Applied to CBET, the SLF offers a way to assess how tourism transforms the capital base available to communities. Tourism may enhance financial capital through income generation, human capital through skills training, social capital through collective governance structures, and natural capital through conservation activities, while drawing on physical capital in the form of tourism infrastructure. The framework also directs attention to the vulnerability context (external shocks, seasonality) and the transforming structures and processes (institutions, policies, governance) that mediate between capital assets and livelihood outcomes.

III. METHODOLOGY

A comparative case study design was employed, examining six CBET projects selected to maximise variation across geographic regions, governance models, biodiversity types, and project maturity. The six cases were:

- Annapurna Conservation Area Project (ACAP), Nepal;
- Osa Peninsula community lodges, Costa Rica;
- Khwai Community Trust, Botswana;
- Raja Ampat homestay programme, Indonesia;
- Posada Amazonas, Peru; and
- Andasibe community guides association, Madagascar.

Data collection combined three methods. First, document analysis reviewed project reports, financial records, management plans, and independent evaluation documents spanning 2015–2023. Second, key informant interviews (n=48, eight per case) were conducted with community leaders, tourism operators, conservation managers, government officials, and NGO representatives. Third, community focus groups (n=12, two per case) involving 8–12 participants each explored community perceptions of tourism benefits, conservation outcomes, and governance effectiveness. Fieldwork was conducted between March 2022 and August 2023.

Cross-case analysis followed Yin's (2018) replication logic, examining whether patterns observed in one case were replicated or contradicted in others. Each case was assessed against the five livelihood capitals and three conservation outcome indicators:

- species population trends (using available monitoring data),
- habitat area maintained or restored, and
- community-reported reduction in extractive activities.

A 5-point scoring system (1 = very low, 5 = very high) was developed for each capital and validated through triangulation across data sources.

IV. RESULTS AND ANALYSIS

4.1. Comparative Overview of CBET Projects

Table 1. Comparative Characteristics of Six CBET Projects

Characteristic	Nepal (ACAP)	Costa Rica (Osa)	Botswana (Khwai)	Indonesia (Raja Ampat)	Peru (Posada)
Governance Model	Community committee + NGO	Community cooperative	Community trust	Homestay network	Community-private joint venture
Est. Year	1986	2005	2000	2010	1996
Key Species	Snow leopard Red panda	Scarlet macaw Jaguar	African elephant Lion	Manta ray Coral reef	Harpy eagle Giant otter
Annual Visitors	~180,000	~25,000	~8,000	~15,000	~12,000
Revenue Sharing	60% to community	85% to community	65% to community	70% to homeowners	60% community 40% operator
Conservation Area (ha)	7,629	42,000	1,800	1,500,000 (marine)	10,000

Table 1 provides an overview of the six CBET projects. Notable variations exist in governance models, scale, and revenue-sharing arrangements. Costa Rica's cooperative model returned the highest share of revenue to the community (85 percent), while the Nepal and Peru models, which involve external partners, distributed 60 percent. Raja Ampat's marine context and Botswana's wildlife trust model represent distinctive institutional arrangements shaped by their respective ecological and cultural settings.

4.2 Livelihood Capitals Assessment

Fig 1. Sustainable Livelihood Capitals Assessment Across Six CBET Projects (1–5 Scale)

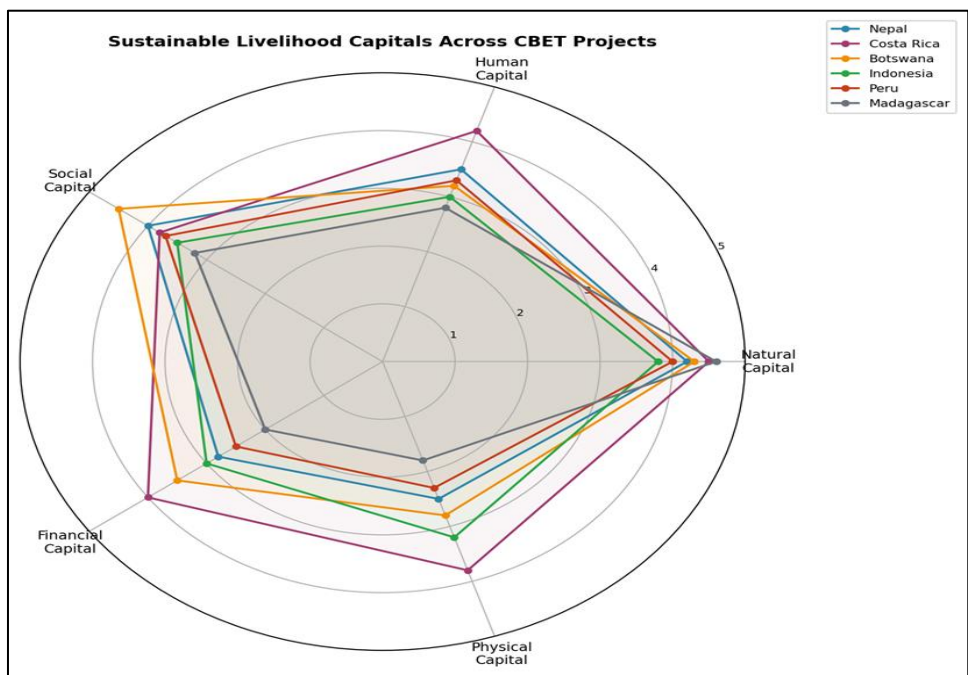


Figure 1 presents the livelihood capitals assessment using a radar chart format. Costa Rica demonstrated the most balanced capital profile, scoring above 3.5 on all five dimensions, reflecting the maturity of its ecotourism sector and the strength of its institutional support systems. Botswana scored highest on social capital (4.5), attributable to the well-established community trust governance structure that ensures collective decision-making and transparent revenue management. Madagascar, despite possessing the highest natural capital score (4.6), reflected its extraordinary endemic biodiversity, scored lowest on financial capital (2.0) and physical capital (1.8), illustrating the paradox of resource richness amid infrastructure poverty.

Nepal's ACAP project showed strong natural capital and social capital scores but moderate financial capital, partly because the high visitor volumes are distributed across a large geographic area, diluting per-household economic benefits. Peru's Posada Amazonas demonstrated moderate scores across all dimensions, with the joint venture model providing stable financial returns but limiting community control over operations. Indonesia's Raja Ampat scored well on natural capital but faced challenges in human capital development, with limited access to tourism training and hospitality skills programmes in remote island communities.

4.3. Biodiversity Conservation Outcomes

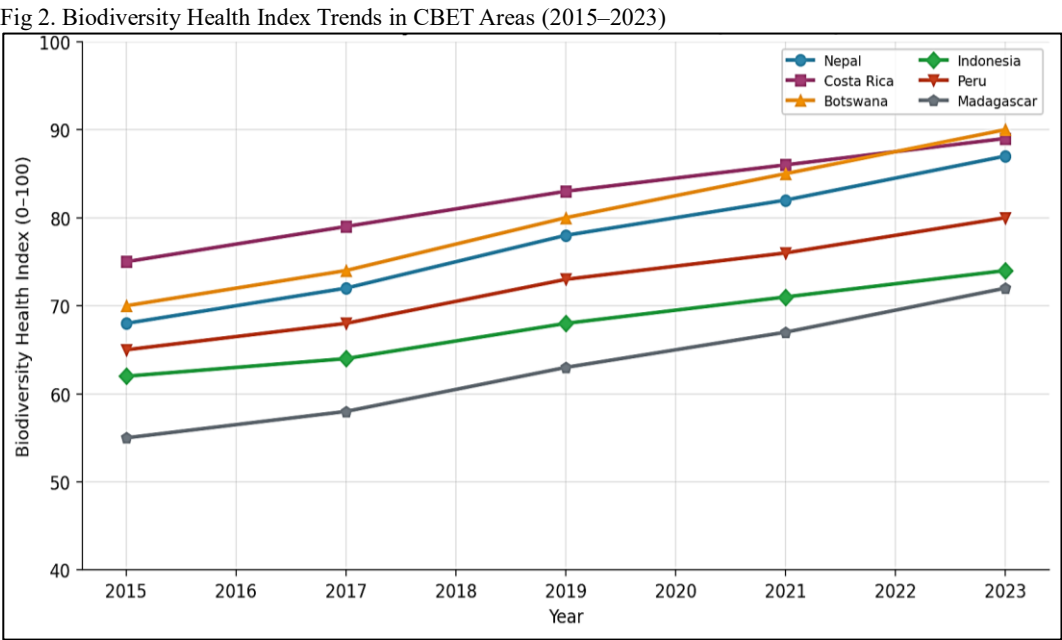


Figure 2 tracks biodiversity health index scores across the six CBET areas over an eight-year period. All six projects showed positive trajectories, though the rate and magnitude of improvement varied. Botswana showed the steepest improvement (from 70 to 90), driven by the elimination of commercial hunting within the community trust area and the deployment of tourism-funded anti-poaching patrols. Costa Rica also achieved strong gains, with scarlet macaw populations in the Osa Peninsula increasing by 65 percent between 2015 and 2023 following nest protection programmes funded by lodge revenues.

Indonesia and Madagascar showed more modest improvements. In Raja Ampat, marine protected area enforcement funded by tourism entry fees has reduced destructive fishing practices, but coral recovery from prior bleaching events remains slow. In Madagascar, deforestation rates within the Andasibe community zone declined by 40 percent compared to surrounding areas, but lemur populations remained under pressure from habitat fragmentation beyond the project boundary.

4.4. Governance and Revenue-Sharing Mechanisms

Table 2. Revenue Allocation and Conservation Investment Across CBET Projects			
Project	Annual Tourism Revenue (USD)	% Allocated to Conservation	% to Community Dividends
Nepal (ACAP)	\$4.2 million	35%	25%
Costa Rica (Osa)	\$1.8 million	28%	42%
Botswana (Khwai)	\$2.1 million	40%	25%
Indonesia (Raja Ampat)	\$950,000	45%	20%
Peru (Posada)	\$1.5 million	30%	30%
Madagascar (Andasibe)	\$280,000	22%	35%

Table 2 reveals varying approaches to balancing conservation investment with community dividends. Raja Ampat allocated the highest proportion to conservation (45 percent), reflecting the high cost of marine patrol operations and the relatively lower opportunity cost of alternative livelihoods in the remote archipelago. Costa Rica allocated the highest proportion to community dividends (42 percent), enabled by the lower marginal cost of maintaining terrestrial conservation in a country with an established protected area system. Madagascar's low absolute revenue (\$280,000 annually) meant that even a 22 percent conservation allocation amounted to only \$61,600 insufficient to fund the level of enforcement needed to address external threats from migration-driven deforestation.

V. DISCUSSION

The comparative analysis reveals that CBET success depends on a constellation of factors rather than any single variable. The strongest-performing projects Botswana and Costa Rica shared three characteristics: mature governance structures with transparent accountability mechanisms, revenue levels sufficient to provide meaningful per-household economic benefits while funding conservation activities, and supportive national policy frameworks that legitimised community resource management.

The livelihood capitals analysis demonstrates that natural capital alone is insufficient for successful CBET. Madagascar possesses arguably the richest biodiversity of any case in this study, yet its CBET outcomes were the weakest, precisely because the social, financial, human, and physical capitals needed to translate natural assets into sustainable tourism enterprises were underdeveloped. This finding aligns with Scoones' (1998) observation that livelihood sustainability requires balance across capital types rather than abundance in any single dimension.

The governance dimension emerged as the most consequential differentiating factor. Projects with strong community governance Botswana's trust model and Costa Rica's cooperative structure achieved both higher community satisfaction and stronger conservation outcomes than those dependent on external management. This is consistent with Ostrom's (1990) common pool resource theory, which predicts that locally governed resource management systems outperform externally imposed ones when certain institutional design principles are met. The key principles observed in the successful cases included clearly defined membership boundaries, proportional benefit-sharing, collective decision-making procedures, graduated sanctioning mechanisms, and accessible conflict resolution processes.

Revenue sufficiency represents a binding constraint that is often underestimated in CBET planning. The Madagascar case illustrates that even well-intentioned projects cannot sustain conservation investment when tourism revenue is too low to cover both operational costs and meaningful community payments. The threshold below which CBET becomes economically unviable varies by context, but the cases examined here suggest that annual revenue below approximately \$500,000 strains the capacity to simultaneously fund conservation, maintain infrastructure, and deliver tangible livelihood benefits.

VI. CONCLUSION AND IMPLICATIONS

This multi-country analysis demonstrates that community-based ecotourism can contribute meaningfully to both biodiversity conservation and rural livelihood enhancement, but that outcomes are contingent on institutional quality, governance capacity, revenue adequacy, and balanced capital development. The Sustainable Livelihoods Framework proved valuable for identifying the structural conditions under which CBET delivers on its dual mandate and those under which it falls short.

For CBET practitioners and NGOs, the findings argue for investing in governance capacity and social capital before scaling tourism operations. Projects that rushed to attract visitors without building community management skills and equitable decision-making processes produced neither strong conservation nor lasting livelihood improvements. The Botswana and Costa Rica models suggest that governance development should precede or at least accompany infrastructure investment.

For conservation organisations, the study reinforces the importance of linking tourism revenue directly to conservation activities through transparent, earmarked funding mechanisms. Projects where conservation funding depended on discretionary allocation from general revenue showed weaker conservation outcomes than those with formal budget earmarks for anti-poaching, habitat restoration, and species monitoring.

For policymakers, the comparative analysis highlights the enabling role of national legal frameworks that recognise community resource rights and provide institutional support for local governance. Countries with Community-Based Natural Resource Management legislation (Botswana) or established cooperative governance frameworks (Costa Rica) created more favourable conditions for CBET than those where community rights over natural resources remained ambiguous or contested.

Limitations include the non-random case selection, the reliance on available biodiversity monitoring data of variable quality, and the difficulty of attributing conservation outcomes solely to CBET activities in the absence of controlled counterfactual analysis. Future research should employ quasi-experimental designs with matched comparison sites to isolate the causal effects of CBET on biodiversity and livelihoods.

REFERENCES

- Balmford, A., Green, J. M. H., Anderson, M., Beresford, J., Huang, C., Naidoo, R., & Manica, A. (2015). Walk on the wild side: Estimating the global magnitude of visits to protected areas. *PLoS Biology*, 13(2), e1002074.
- Blackman, A., Naranjo, M. A., Robalino, J., Alpízar, F., & Rivera, J. (2015). Does tourism eco-certification pay? Costa Rica's Blue Flag program. *World Development*, 58, 41–52.
- Brockington, D., & Scholfield, K. (2010). The conservationist mode of production and conservation NGOs in sub-Saharan Africa. *Antipode*, 42(3), 551–575.
- CBD. (2018). *Tourism and biodiversity: Achieving common goals towards sustainability*. Convention on Biological Diversity.
- Ceballos-Lascuráin, H. (1996). *Tourism, ecotourism, and protected areas*. IUCN.
- Chambers, R., & Conway, G. R. (1992). *Sustainable rural livelihoods: Practical concepts for the 21st century* (IDS Discussion Paper 296).
- Coria, J., & Calfucura, E. (2012). Ecotourism and the development of indigenous communities: The good, the bad, and the ugly. *Ecological Economics*, 73, 47–55.
- Das, M., & Chatterjee, B. (2015). Ecotourism: A panacea or a predicament? *Tourism Management Perspectives*, 14, 3–16.
- DFID. (1999). *Sustainable livelihoods guidance sheets*. Department for International Development.
- Ferraro, P. J., & Kiss, A. (2002). Direct payments to conserve biodiversity. *Science*, 298(5599), 1718–1719.
- Goodwin, H., & Santilli, R. (2009). *Community-based tourism: A success?* (ICRT Occasional Paper 11).
- Gössling, S. (1999). Ecotourism: A means to safeguard biodiversity and ecosystem functions? *Ecological Economics*, 29(2), 303–320.
- Jones, S. (2005). Community-based ecotourism: The significance of social capital. *Annals of Tourism Research*, 32(2), 303–324.

- Kiper, T. (2013). Role of ecotourism in sustainable development. In M. Özyavuz (Ed.), *Advances in landscape architecture* (pp. 773–802). IntechOpen.
- Kiss, A. (2004). Is community-based ecotourism a good use of biodiversity conservation funds? *Trends in Ecology & Evolution*, 19(5), 232–237.
- Krüger, O. (2005). The role of ecotourism in conservation: Panacea or Pandora's box? *Biodiversity and Conservation*, 14(3), 579–600.
- Mbaiwa, J. E. (2005). Enclave tourism and its socio-economic impacts in the Okavango Delta, Botswana. *Tourism Management*, 26(2), 157–172.
- Mbaiwa, J. E., & Stronza, A. L. (2010). The effects of tourism development on rural livelihoods in the Okavango Delta, Botswana. *Journal of Sustainable Tourism*, 18(5), 635–656.
- Mitchell, J., & Muckosy, P. (2008). *A misguided quest: Community-based tourism in Latin America* (ODI Opinion 102).
- Naidoo, R., & Adamowicz, W. L. (2005). Biodiversity and nature-based tourism at forest reserves in Uganda. *Environment and Development Economics*, 10(2), 159–178.
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press.
- Scheyvens, R. (2002). *Tourism for development: Empowering communities*. Pearson Education.
- Scoones, I. (1998). Sustainable rural livelihoods: A framework for analysis (IDS Working Paper 72).
- Snyman, S. (2012). The role of tourism employment in poverty reduction and community perceptions of conservation and tourism in southern Africa. *Journal of Sustainable Tourism*, 20(3), 395–416.
- Snyman, S., & Bricker, K. S. (2019). Living on the edge: Benefit-sharing from protected area tourism. *Journal of Sustainable Tourism*, 27(6), 705–724.
- Spenceley, A. (2008). *Responsible tourism: Critical issues for conservation and development*. Earthscan.
- Stone, M. T., & Nyaupane, G. P. (2016). Protected areas, tourism and community livelihoods linkages: A comprehensive analysis approach. *Journal of Sustainable Tourism*, 24(5), 673–693.
- Stronza, A., & Gordillo, J. (2008). Community views of ecotourism. *Annals of Tourism Research*, 35(2), 448–468.
- Stronza, A. L., Hunt, C. A., & Fitzgerald, L. A. (2019). Ecotourism for conservation? *Annual Review of Environment and Resources*, 44, 229–253.
- UNWTO. (2021). *Tourism for inclusive growth: Advancing universal accessibility*. World Tourism Organization.
- Yin, R. K. (2018). *Case study research and applications* (6th ed.). Sage.