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THE EFFECT OF LOCAL CULTURAL CONTEXT ON COMMUNITY-BASED CONSERVATION INTERVENTIONS: EVALUATING ECOLOGICAL, ECONOMIC, ATTITUDINAL AND BEHAVIOURAL OUTCOMES

Systematic Review Protocol

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1. BACKGROUND

Since the 1980s, conservation efforts in developing countries have generally tried to incorporate the interests and views of local people (Western et al. 1994). These interventions require evaluation to understand what factors predict success or failure since to date outcomes have been mixed (Kellert et al. 2000). To date there has little systematic investigation of the effect of social and cultural context on conservation success, although a large body of literature argues it should be important (e.g. Brechin et al. 2002). Only one previous systematic review has studied determinants of conservation success, focusing on the use of development as a conservation tool (Brooks et al. 2005). Here we set out a methodology to systematically test the role of local cultural context on conservation outcomes, using four measures of success: ecological, economic, attitudinal and behavioural. The review will be of value to policy makers and conservation practitioners by highlighting which project characteristics may be useful to focus in future interventions.

2. OBJECTIVE

The primary objective of this review is to assess the role of local cultural context, particularly local institutions, and the efforts of interventions to engage with this, on the outcomes of community-based conservation (CBC) projects. We also test the effects of community participation, conservation education, benefit provision and market integration.

Five research questions are used. Is success in CBC interventions predicted by: (1) a supportive local cultural context, (2) project engagement with local cultural context, (3) high levels of local participation, (4) conservation education, (5) market integration and benefit provision by projects?.

Definitions of key variables

Predictor variable	Definitions
<i>Local cultural context</i>	
supportiveness of institutions	supportiveness of non-governmental institutions (for example, a taboo on hunting a protected species) and effectiveness of governmental institutions (e.g. efficient community council)
land tenure	control and ownership of land, whether it is local or controlled by higher level interests
human population size	population size that is targeted by the project, used as an indicator of community homogeneity
<i>Project approach to culture</i>	
institution building	assistance by the intervention for institution building, activities designed to create and/or improve institutions for governance or natural resource management
approach to governmental institutions	approach of the intervention to local governmental institutions from conflict to active engagement
approach to non-governmental institutions	approach of the intervention to local non-governmental institutions from conflict to active engagement

Outcome variable	Definition
attitudinal	local attitudes towards the conservation intervention and intended conservation goals and activities
behavioural	local behaviours of interest to conservation (either avoidance or alteration of destructive behaviours and/or adoption of new pro-conservation behaviours)
ecological	ecological outcomes of interest to conservation (either species or area-based, depending on intervention goals)
economic	local economic and material outcomes influenced by the project, including community level developmental benefits

3. METHODS

3.1. Study inclusion criteria

Studies will be included if they meet the following criteria:

- Type of study – any primary studies
- Subject studied – any community-based conservation project with specific conservation goals to be achieved with some attention or inclusion of local people.
- Outcomes – four different measures of success are sought (ecological, economic, attitudinal, and behavioural). At least two of the outcomes had to be measured for inclusion in the study.
- Quality of evidence – no more than 25% missing information about predictors.

3.2. Search strategy

Searches of web-based databases will be made for peer-reviewed publications in ISI Web of Knowledge, Anthropology Plus and JSTOR electronic databases. In addition we will search Google Scholar, and accept any relevant academic theses and NGO reports. We searched for the terms *community based conservation, integrated conservation and development, ICDP, CBC and community conservation*. Only English language publications will be assessed.

3.3. Study quality assessment

The researchers will together determine which papers fulfil the selection criteria for inclusion in this study. All studies that fulfil the selection criteria will be included and methodology recorded.

3.4. Data extraction strategy

Two researchers will code each paper separately and then meet together to discuss their findings. When coders disagree, each will make a case for their decision and the most appropriate response, when both agree, will be chosen. Coders will base their information only on that presented in the paper, and will not incorporate knowledge from outside sources into their decisions. To test their procedure, the protocol will first be

tested upon an article known not to meet the inclusion criteria (ie no explicit conservation aim). Where the coding protocol is ambiguous it will be revised.

Inter-coder reliability will be assessed by calculating Cohen's Kappa with the 'irr' package (Gamer et al. 2008) in R version 2.6.0 (R Development Core Team 2007). Cohen's Kappa represents the proportion of agreement after accounting for the level of agreement expected by chance when coding categorical data (Cohen 1960), and Cohen's weighted Kappa for ordinal data (Cohen 1968; Siegel & Castellan 1988). Variables will be removed where there is high disagreement over their coding which cannot be improved by revising the coding sheet (ie kappa under 0.30).

3.5. Data synthesis

The information extracted from the studies will be used to create a dataset stored in Excel. Both qualitative and quantitative information will be used to create variables that describe the project and its context. The full coding sheet can be found in Appendix A.

4. CONFLICTS OF INTEREST

The research is primarily supported by KAW's studentship PTA-036-2006-00023 from the Economic and Social Research Council and Natural Environment Research Council, U.K. There are no potential conflicts of interest declared.

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APPENDIX

Coding sheet describing the predictor and outcome variables

Predictors of community-based conservation intervention outcomes, together with descriptions of what they represent and their coding: variables were ordered such that positive associations with outcomes indicated support for the relevant hypothesis, and where no information was available, a variable should be coded as 'NA'. *Where possible, to facilitate comparison, we coded variables and ordered categories in the same way as Brooks et al. (2005). These variables are marked * and their labels correspond with Brooks: establishment input = implementation, decision control= decision, PA use = IUCN, intervention benefits = use. Further detail of their coding is in Brooks et al. (2005) and its accompanying protocol on www.environmentalevidence.org.

Hypothesis and variable names	Description of how to code variable
1. Local cultural context	
supportive institutions	Indicate the supportiveness of non-governmental institutions (for example, a taboo on hunting a protected species) and effectiveness of governmental institutions (for example, intra-community conflicts indicate poor effectiveness). Use a three-level ordinal variable (from unsupportive/conflicting institutions, to supportive institutions) Combine and weigh multiple pieces of information (ie helpful taboos but also conflict in a community council means second level chosen; if there was one mention of conflict but lots of other evidence that conditions are supportive, then choose the third level.
land tenure	Indicate who has control and ownership of land using a four-level ordinal variable from low to high community control (1: no community control, 2: mixed community and other control, 3: local but private land ownership, 4: total communal and/or community control).
human population size	Record the population size targeted by the conservation intervention; seven-level ordinal variable (over 50,000, 10,000-50,000, 5,000-10,000, 1,000-5,000, 500-1,000, 200-500, under 200)
2. Intervention engagement with local cultural context	
institution building	Indicate if any assistance was given by the intervention for institution building (e.g. activities designed to create and/or improve institutions for governance or natural resource management in the local community). Binary variable (no/yes)
approach to governmental institutions	Record the approach of the intervention to local governmental institutions (local level organizations and formal social constraints, including constitutions, laws and enforcement); using a three-level ordinal score (from conflict by project, to mixed or no engagement, to active positive engagement).

Hypothesis and variable names	Description of how to code variable
approach to non-governmental institutions and shared values	Record the intervention's approach to local non-governmental institutions (such as traditions or religion) and shared values (such as widespread pride in a particular local feature) using a three-level ordinal score (from conflict by project, to mixed or no engagement, to active positive engagement)
3. Community participation	
establishment input*	Describe community involvement in the intervention's initial design and development. Indicate level of community involvement using a five-level ordinal score: 1 control only by international NGO or outside agency, 2 mixed national and international control, 3 national control 4 community control with some other control, 5 complete community control.
decision control*	Indicate the community's control of day-to-day decision making within the intervention using a three-level ordinal scale (from 1, no community control to 2, some community control, to 3, total community control).
charisma	Was there the presence of charismatic individuals who may strengthen institutions and galvanize support for conservation? Record as a binary variable (no/yes)
4. Conservation education	
education	Did the intervention make provision for conservation education to the community; binary variable (no/yes)
5. Benefits and market integration	
market threat	Indicate if the principal threat to biodiversity is linked to commercial market forces (ie commercial timber trade driving logging); binary score (no/yes)
market integration	How integrated is the community with outside markets? Market integration is assessed on three criteria: a community's involvement in wage labour, market sales, market purchases and distance from markets; three-level ordinal variable (from low to high market integration)
PA use*	If an intervention is associated with a protected area, indicate the permitted resource utilization of that area by using the IUCN ranking for that area (www.iucn.org/themes/wcpa/ppa/protectedareas.htm); six-level ordinal score (from no use, to unrestricted resource use: Strict Nature Reserve, National Park, National Monument, Habitat/Species Management Area, Protected Landscape (this incorporates anthropological reserve category) Managed Resource Area (this incorporates multiple use area category) – for more information see protocol of Brooks et al. 2005

Hypothesis and variable names	Description of how to code variable
intervention benefits *	Describe the approach of the intervention to the generation and provision of tangible benefits for the community; using the same seven-level ordinal variable ordered as per Brooks* (from no community use, to interventions that use a variety of approaches to benefit the community).
benefit inequity	Indicate if there is any evidence that benefits generated by the intervention were inequitably distributed; binary variable (yes/no)

Indicators of outcomes of community-based conservation interventions, together with descriptions of what they represent: assessments of failure or success are based on judgments made by each source, not by the coder, and where no information is available, a variable should be coded as 'NA'.

Outcome variable	Description of variable and coding
attitudinal	Summarise local attitudes towards the conservation intervention and conservation goals and activities using a three-level ordinal variable, ordered from failure (e.g. no changed attitudes and even creation of negative attitudes), mixed effects (e.g. some evidence of positive attitudes or changed attitudes in a few), to success (e.g. significant positive attitudes in the population).
behavioural	Summarise local behaviours of interest to conservation (either avoidance or alteration of destructive behaviours and/or adoption of new pro-conservation behaviours) using a three-level ordinal variable. Order from failure (e.g. no behavioural change), to mixed effect (e.g. a few or limited behavioural changes) to success (e.g. significant change of behaviour and/or change in the majority of the community).
ecological	Summarise ecological outcomes of interest to conservation (either species or area-based, depending on intervention goals); using a three level ordinal variable. Order from failure (e.g. decline or no improvement in ecological status), mixed effects, to success (e.g. improvement in populations of interest, or improved habitat diversity).
economic	Summarise local economic outcomes influenced by the project, including community level developmental benefits using a three level ordinal variable. Order from failure (e.g. failure to improve income of any participants, or failure to provide community-level benefits) to mixed effects, to success (e.g. significant improvement in income of majority of community).