



CEE review 08-011

THE EVIDENCE BASE FOR COMMUNITY FOREST MANAGEMENT AS A MECHANISM FOR SUPPLYING GLOBAL ENVIRONMENTAL BENEFITS AND IMPROVING LOCAL WELFARE

Systematic Review Protocol

PULLIN, A.S., BOWLER, D., BUYUNG-ALI, L., HEALEY, J.R., JONES, J.P.G., KNIGHT, T. & SINCLAIR, F.

Centre for Evidence Based Conservation - School of the Environment and Natural Resources -Bangor University –
Bangor –Gwynedd -LL57 2BU

Correspondence: a.s.pullin@bangor.ac.uk
Telephone: +44 1248 382444

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1. Background

Sustainable forest management (SFM) aims to “*maintain and enhance the economic, social and environmental values of forests for the benefit of present and future generations*”.¹ Among the objectives of SFM is the conservation of biological diversity; prevention, control and reversal of land degradation; mitigation of desertification; mitigation or adaptation to climate change; and the production of wood and non-wood forest products and services.

In pursuit of SFM, many developing nations have devolved full or partial forest management authority to local communities. This devolution is expected to contribute to poverty reduction, economic development and biodiversity conservation. Approaches to such community forest management (CFM) go by many names and forms: co-management, joint management, participatory management, community-based forest management, indigenous reserves. Despite the differences in names and emphases, they have in common the involvement of people who live in and around the forest in the management decisions that affect forest use and conservation. In the context of this review, we define community forest management as:

De jure, government-approved forms of forest management by local communities, with the following characteristics:

1. a core objective of providing local communities with social and economic benefits whilst promoting the sustainable management of community- or state-owned forests²
2. some degree of control and decision-making power vested in the community by the government (or designated authority).

Given the fiscal constraints faced by developing country governments, the forest knowledge of local people, and the ability of local people to monitor and implement management plans, the decentralization of forest management and control is argued to yield both ecological and economic benefits. These benefits are hypothesized to be realized at local, national and global scales. Based on the growing global popularity of CFM approaches, such programmes are attracting increasing funding from international organisations, such as the Global Environment Facility (GEF).

The evidence base for CFM approaches, however, is not well documented. This review will characterize the empirical evidence that CFM can generate global environmental benefits (i.e., public goods not confined to the nation with the CFM initiative, e.g. biodiversity conservation, carbon sequestration), as well as local benefits (i.e., benefits to communities entrusted with

¹ As adopted in the “Non-legally binding Instrument on All Types of Forests” (NLBI) at the seventh session of the United Nations Forum on Forests (UNFF), April 2007.

² We adopt the FAO’s definition of “forest” presented in the 2005 Global Forest Resources Assessment (<http://www.fao.org/docrep/007/ae156e/AE156E03.htm#TopOfPage>).

management authority, e.g. changes in household income, food security) and regional/national environmental benefits (i.e., public goods within the nation with the CFM initiative, e.g. watershed protection).

2. Objective of the Review

Primary question

Does Community Forest Management supply global environmental and local welfare benefits in less developed countries?

SUBJECT	INTERVENTION	OUTCOME MEASURE	COMPARATOR
a. - Forest ecosystems b.- Human populations	Community forest management programmes in Less Developed Countries	a. Change in biodiversity forest cover, forest condition, fuel wood availability, carbon sequestration, measures of land degradation and desertification, forest loss, land conversion, forest productivity (wood and non-wood), b. Measures of local human welfare: income, employment, income equality, social equity, food security, health.	Without and/or before/after CFM.

3. Methods

3.1 Search strategy

The search aims to capture an unbiased and comprehensive sample of the literature relevant to the question, whether published or unpublished. Different sources (specific and general) of information will be searched in order to maximise the coverage of the search.

3.1.1. General search

Databases.

The search aims to include the following computerized databases:

- Science and Social Science Citation Index
- British Library for Development Studies (<http://blids.ids.ac.uk/collect.html>)
- Scopus

- Agricola
- CAB Abstracts
- PubMed
- EMBASE
- PSYCINFO
- Science Direct
- ECONLIT
- Index to Theses Online
- Directory of Open Access Journals

Web sites

An internet search will be performed using the following web sites:

- 1) www.google.com
- 2) www.jux2.com
- 3) www.scholar.google.com
- 4) <http://scientific.thomsonwebplus.com/>
- 5) www.scirus.com (web sources only)

The first 100 hits from each search will be checked for relevance. Any links present will be followed only once from the original hit.

3.1.2. Specific search

This review is focussed on programmes of the type run by the GEF family of agencies, CGIAR centres and national forestry agencies. Consequently specific searches will be made of the data holdings of GEF and its 10 implementing agencies (see <http://www.gefweb.org/interior.aspx?id=104>).

Websites of other specialist organisations will also be searched (listed below), and where appropriate, this search will be restricted to the publications section of the websites.

<http://www.capri.cgiar.org/>
<http://www.catie.org.ac.cr/>
<http://www.cbnrm.net/>
<http://www.cgiar.org/>
<http://www.cifor.cgiar.org>
<http://www.cof.orst.edu/org/istf/ftpp.htm>
<http://www.communityforestryinternational.org/>
<http://www.conservation.org>
<http://www.dfid.gov.uk>
<http://www.etfrn.org>
<http://www.fao.org/>
<http://www.forestrycenter.org/>
<http://forests.org/>
<http://www.forestsandcommunities.org/>
<http://www.ifad.org/>

<http://www.iied.org>
<http://www.indiana.edu/~iascp/>
<http://www.iucn.org>
<http://www.livelihoods.org>
<http://www.www.macp-pk.org>
<http://www.odi.org>
<http://www.www.panda.org>
<http://www.pfc.cfs.nrcan.gc.ca/>
<http://www.rainforestportal.org/>
<http://www.recoftc.org>
<http://www.tropenbos.nl/>
<http://www.usaid.gov/>
<http://www.waldbau.uni-freiburg.de/forlive/Home.html>
<http://www.wcs.org>

3.1.3. Search terms

Combinations of the following English search terms (where * denotes a wild card to search for alternative word endings) will be applied to the databases and internet search engines:

"community forest*"
"community-based forest*"("co-management" AND forest*)
("joint management" AND forest*)
"JFM"
"participatory forest*"
"indigenous forest* reserve*"
"decentrali* forest*"
"integrated conservation development pro*"
"ICDP*"
"community-based natural resource*"
(community AND "natural resource management" AND forest*)
("common property AND forest*)

Where appropriate searches will also be conducted in French and Spanish using the following terms:

"Manejo Forestal Comunitario"
"Ejido forestal"
"Desarrollo forestal participativo"
"Gestion communautaires (ou villageois) forêt"
"Gestion autorités communales forêt"
"La foresterie communautaire"
Foresterie pour le developpement rural"
"Transfert de Gestion"

Reference sections of studies included in the review, as well as traditional reviews, will also be searched for any further relevant citations missed by the above search.

Subject experts and practitioners will be contacted for additional references, and, for included studies, authors may be requested to provide any unpublished material or missing data that may be relevant to the review.

3.2 Study inclusion criteria

Inclusion criteria will be applied in order to select from those captured by the search articles that are relevant to the review question.

Citations from computerised databases will be downloaded and imported into an Endnote library. In the first instance, the inclusion criteria, which are identified below, will be applied on title only, to remove spurious citations. Articles remaining will then be filtered by abstract and further, by viewing remaining articles at full text.

Hits from web searches will be filtered initially with the inclusion criteria on the abstract of articles (or introduction section or equivalent if an abstract is not available), and then at full text. URLs for hits deemed relevant at abstract will be maintained within an Excel spreadsheet, and subsequently filtered at full text.

To check for consistency of application of inclusion criteria, two reviewers will apply the inclusion criteria to 200 articles at the start of the abstract filter. The kappa statistic will be calculated to measure the level of agreement between reviewers. If kappa is less than 0.6, the reviewers will discuss the discrepancies and clarify the interpretation of the inclusion criteria. This may entail a modification in the criteria specification. After this discussion, and adjustments where appropriate, one reviewer will apply the inclusion criteria to the rest of the citations.

Each article must meet the following criteria in order to be included after each filter. In cases of uncertainty, the reviewer will tend towards inclusion.

Relevant subject(s): Any forest ecosystem or human population associated with a CFM programme in less developed countries.

Types of intervention: CFM programmes in less developed countries.

Types of outcome: a. changes to: biodiversity (surrogate measures of), forest cover or forest condition, fuel wood availability, carbon sequestration (any measure), land degradation or conversion, forest loss desertification, forest productivity (wood and non-wood), water supply; b. changes in the following local welfare indicators: income, employment, food security, social equity, income equality, health. We will include studies which report any direct measure of these indicators, prioritising for analysis those which present quantitative measurements and/or use validated scores. .

Types of study: Studies providing empirical data, qualitative or quantitative data, will be included in the review. We shall prioritise for analysis those studies making explicit comparisons between CFM and 'no CFM': these within-study comparisons may have been made on the basis of internal or experimental comparators (i.e. before-after; intervention A v intervention B), or through the use of constructed comparators (i.e. studies which use external data sets or models to develop scenarios for comparison). In the first instance, studies without comparators will be classified and recorded.

The literature meeting all inclusion criteria at full text assessment will be grouped into pools of literature on different topics. Summary tables will be produced which present the classification of included studies by type of study and study topic.

Potential reasons for heterogeneity:

- Community context, including: location (proximity to forest), size, density, distribution, population growth, heterogeneity (e.g. 'local' vs. migrant), economic conditions (inc. degree of forest dependency), traditional management practices, indigenous knowledge, cultural/religious settings, presence of conflict (resource or otherwise, e.g. local and outsider conflict).
- Forest/site attributes, including: size, existing condition, location/accessibility, forest type, diversity, ecological complexity, development pressure, degree of formal protection, presence of illegal logging.
- Technological and market influences, including: infrastructure, demand and value for forest products, price stability, distance to market.
- Programme attributes, including: financial support, degree of decentralization, technical assistance, leadership/management approach, monitoring, enforcement, incentives, compensation.
- Institutional & political context, including: property rights, land tenure, forest laws, security, institutional settings, presence of corruption, external support (local organisations, government, etc.).

3.3. Study quality assessment

Reviewers will consider articles viewed at full text, excluding them from the review or admitting them to different categories of information quality. Two reviewers will independently assess a random subset of articles viewed at full text to ensure repeatability of study quality appraisal. Disagreement regarding study quality will be resolved by consensus, or following assessment by a third reviewer.

Where possible, study quality will be assessed according to a hierarchy of evidence, adapted from models of the systematic review process used in medicine and public health (Pullin & Knight 2003): so that, for example, a randomised control trial would be weighed higher than a site comparison study.

3.4 Data extraction and synthesis

The quantity, quality and type of information available to address the components of this review are currently unknown. Methods for extraction and synthesis are therefore imprecise and will be the subject of protocol amendment prior to commencing this phase of the work. If sufficient relevant data are available, we aim to carry out a quantitative synthesis of one or more of the pools of literature, and explore the impact of the potential reasons for heterogeneity. The methodological quality of studies will be assessed in terms of ability to minimise error and bias and conclusions drawn in the review will be weighted by the quality of studies available (Pullin & Stewart 2006). Where limited information is available, or data types too diverse for quantitative synthesis, studies will be categorised according to subject, intervention and outcome to facilitate qualitative summary. Meta-analysis will be undertaken on any individual pool of data where effect sizes can be derived. Other methods of quantitative analysis will be used where effect sizes cannot be calculated but quantitative data are available.

4. Potential Conflicts of Interest and Sources of Support

This review is funded by the Scientific and Technical Advisory Panel of the Global Environment Facility (GEF). The GEF supports Sustainable Forest Management (SFM) as part of its framework strategy for SFM (http://www.thegef.org/uploadedFiles/Policies/Focal_Area_Strategies/GEF_4_strategy_SFM_Oct_2007.pdf) and through focal area strategies for biodiversity, climate change and land degradation.

References

Pullin, A.S. and Knight, T.M. (2003). Support for decision making in conservation practice: an evidence-based approach. *Journal for Nature Conservation*, **11**: 83-90.

Pullin, A.S. & Stewart, G.B. (2006) Guidelines for systematic review in conservation and environmental management. *Conservation Biology* **20**, 1647-1656.