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# **The Evidence Base for Community Forest Management as a Mechanism for Supplying Global Environmental Benefits and Improving Local Welfare**

***A STAP advisory document***

September 2010

**Scientific and Technical Advisory Panel**

The Scientific and Technical Advisory Panel, administered by UNEP, advises the Global Environmental Facility



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## 8.1. APPENDIX A

### 8.1.1. Studies included in the synthesis

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## 8.2. APPENDIX B – The Search strategy

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### 8.2.1. General search

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#### Literature databases

The following computerized databases were searched for relevant studies:

- Science and Social Science Citation Index
- British Library for Development Studies
- Scopus
- Agricola
- CAB Abstracts
- PubMed
- EMBASE
- PsycINFO
- Science Direct
- EconLit
- Index to Theses Online
- Directory of Open Access Journals

#### Internet search engines

An internet search was performed using the following web engines:

- [www.google.com](http://www.google.com)
- [www.jux2.com](http://www.jux2.com)
- [www.scholar.google.com](http://www.scholar.google.com)
- <http://scientific.thomsonwebplus.com/>
- [www.scirus.com](http://www.scirus.com) (restricted to “web sources” only)

### 8.2.2. Specialist website search

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GEF agencies were contacted for any potentially relevant material, these agencies are:

The United Nations Development Programme (UNDP)

The United Nations Environment Programme (UNEP)

The World Bank

The African Development Bank (AFDB)

The Asian Development Bank (ADB)

The European Bank for Reconstruction and

Development (EBRD)

The Inter-American Development Bank (IDB)

The International Fund for Agricultural Development (IFAD)

The UN Food and Agriculture Organisation (FAO)

The UN Industrial Development Organisation (UNIDO)

The websites of the following specialist organisation were searched to identify further relevant publications for inclusion into the review:

<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.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>

## 8.3. APPENDIX C - Study characterisation

**Table C.1.** Summary of categories and response details used to characterise included studies.

Category	Item	Type of Response
<b>Context of study</b>	Country	Country in which data was collected
	Region	Region of country specified above
	Study aim	The question the study aimed to investigate (usually extracted from the abstract/final paragraph of introduction)
<b>CFM features</b>	Type of CFM	The type of CFM under study, based on the author's terms
	No. of forests	No. of forests in the study
	No. of villages	No. of villages in the study
	Independence of test	Are the numbers of forests/villages independent tests of the effectiveness of CFM implementation?
	Age of CFM	How many years has CFM been implemented before the data had been collected?
	Size of CFM	What is the area of land under CFM?
<b>CFM implementation</b>	CFM participation	Is any information given on the participation of individuals (e.g. decision/rule making) in CFM?
	CFM enforcement	Is any information given on the enforcement of CFM (patrolling/sanctions)?
<b>Comparator if site comparison:</b>	Type	Before/after or site comparison
	Type	Type of forest in site comparison e.g. state-managed forest
	No. of forests	No. of comparator forests in the study
	No. of villages	No. of comparator villages in the study
	Independence of test	Are the numbers of forests/villages independent tests of the effectiveness of the alternative management?
	Age of management	How many years has the comparator management been implemented before the data had been collected?
	Size of forest	What is the area of land under the comparator management?
<b>Author selection of sample sites (note different scales)</b>	CFM site	Does the author describe the reasons for investigating the specific CFM sites in the study?
	CFM sampling frame	If random sampling of CFM sites then what is the 'population' from which sites were drawn?
	CFM participants/sub-sites	Does the author describe the selection of participants/sub-sites within each CFM site from which data was collected?
	Comparator site	Does the author describe the reasons for investigating the specific comparator sites in the study?
	Comparator participants/sub-sites	Does the author describe the selection of participants/sub-sites within each comparator site from which data was collected?

Category	Item	Type of Response
<b>(Control) of Confounders</b>	Initial CFM placement	Does the author describe why CFM was implemented in the particular site(s)?
	Initial Comparator site placement	Does the author describe why the comparator management was implemented in the particular site(s)?
	Base-line data	Is data available at base-line i.e. before the sites were under different managements?
	Confounders test	Do the authors either show data for or statistically investigate differences between sites that may confound the effects of CFM?
	Other confounders	Is there any discussion elsewhere on differences between CFM and the comparator site that might explain any differences in the outcomes measured?
	Attempt to account for confounders in the analysis	Do the authors attempt to account for any potentially confounding differences in the analysis of the outcome?
	Contamination/spill-over	Is there any evidence that the management in one site affected activities in other sites?
	Inter-site distance	Is the distance between CFM and comparator sites given?
<b>Methodology</b>	Basic details	What techniques/instruments were used to collect the samples?
	Replication CFM	How many samples were collected from each site (or in total if the former was not available)
	Replication Comparator site	How many samples were collected from each site (or in total if the former was not available)
	Validity of methodology	Is there any attempt to verify the validity of the techniques used?
	Withdrawals/attrition	Was there any loss of sites during the study or sites that could not be sampled?
<b>Outcome</b>	Broad outcome	Based on table 1 in the protocol, list the broad outcomes of the study
	Specific outcome	List of specific outcomes that have been measured and presented in the article
	Potential for meta-analysis	Is data presented in a form that could be used in a meta-analysis?
<b>Reasons for heterogeneity</b>	Community context	Is there any investigation/discussion of the role of this factor in the effect of CFM?
	Forest/site attributes	Is there any investigation/discussion of the role of this factor in the effect of CFM?
	Tech & Market influences	Is there any investigation/discussion of the role of this factor in the effect of CFM?
	Programme attributes	Is there any investigation/discussion of the role of this factor in the effect of CFM?
	Institution & political context	Is there any investigation/discussion of the role of this factor in the effect of CFM?
<b>Authors conclusions</b>	Score	On a scale of 0, 1 or 2 for none, partial/mixed or full support of the effectiveness of CFM based on authors concluding remarks
<b>Comments</b>	General comments	Any general remarks/extra notes that may be relevant



## 8.4. APPENDIX D – Description of studies included in the review synthesis

**Table D.1.** Project characteristics and design of studies included in the review synthesis (livelihood studies not included).

Reference	Location	Project details	Methodology
Adhikari, B., Williams, F., and Lovett, J. C. (2007). Local benefits from community forests in the middle hills of Nepal. <i>Forest Policy and Economics</i> , 9(5): 464-478	Kavre Palanchok & Sindhu Palanchok districts, Nepal	<p><b>Type of CFM:</b> community forestry</p> <p><b>Measured outcome/s:</b> resource collection: fuel wood, leaf litter, fodder, grass and thatching material</p> <p><b>Comparator/s:</b> before/after</p>	<p><b>Methodology:</b> mixed methods – structured surveys used to ascertain current and historical collection; cross-checked with group discussion</p> <p><b>Study site selection:</b> 2 districts in Nepal, selected on the basis that they were representative ‘forest-dependent’ districts. Four forest user groups within each district selected on the basis of maturity (at least 5 years under CFM)</p> <p><b>Participants/sub-site selection:</b> stratified random selection of households: households in each village assigned to income class (v low, low, middle, high) and 20% households from each class randomly selected. 330 households surveyed in total</p>
Aggarwal, A., R. S. Sharma, et al. (2006). “An ecological assessment of greening of Aravali mountain range through joint forest management in Rajasthan, India.” <i>International Journal of Environment and Sustainable Development</i> 5(1): 35-45	Rajasthan, India	<p><b>Type of CFM:</b> JFM (plantations and natural forests) across 7 forest divisions (29 Forest Protection Committee)</p> <p><b>Measured outcome/s:</b> forest condition (diversity, richness, density, basal area, cut stems and size distribution)</p> <p><b>Comparator/s:</b> areas with similar conditions but no silvicultural interventions</p>	<p><b>Methodology:</b> quantitative – replicate quadrats (33 in total in the JFMs)</p> <p><b>Study site selection:</b> divisions were representative of different geographic areas</p> <p><b>Participants/sub-site selection:</b> not described</p> <p>Confounders not investigated</p>

Reference	Location	Project details	Methodology
Ali, T., M. Ahmad, et al. (2007)a. "Impact of participatory forest management on financial assets of rural communities in Northwest Pakistan." Ecological Economics 63(2-3): 588-593	North West Frontier Province, Pakistan	<p><b>Type of CFM:</b> participatory forest management (PFM)</p> <p><b>Measured outcome/s:</b> number and type of income sources, savings and access to loans</p> <p><b>Comparator/s:</b> villages not participating in PFM</p>	<p><b>Methodology:</b> questionnaire survey, interviews with key informants, focus groups</p> <p><b>Study site selection:</b> 4 villages in 2 districts randomly selected (method not reported) from all PFM project villages in districts</p> <p><b>Participants/sub-site selection:</b> random selection (method not reported) of 50 households per village (both study sites and comparators)</p>
Ali, T., M. Ahmad, et al. (2007)b. "Impact of participatory forest management on vulnerability and livelihood assets of forest-dependent communities in northern Pakistan." International Journal of Sustainable Development and World Ecology 14(2): 211-223	North West Frontier Province, Pakistan	<p><b>Type of CFM:</b> participatory forest management (PFM)</p> <p><b>Measured outcome/s:</b> Distance, access and density of the nearest forests to house, change in forest cover &amp; illegal wood cutting, institutional access to timber,, means of obtaining timber, degree of trust/relationship between respondents &amp; state institutions, perceived performance and participation in Village Development Committees (VDCs) and Women's Organisations (WO), sources of income &amp; seasonality, household illness – the latter 2 outcomes not for comparators</p> <p><b>Comparator/s:</b> villages not participating in PFM</p>	<p><b>Methodology:</b> questionnaire survey, interviews with key informants, focus groups</p> <p><b>Study site selection:</b> 4 villages in 2 districts randomly selected (method not reported) from all PFM project villages in districts</p> <p><b>Participants/sub-site selection:</b> random selection (method not reported) of 50 households per village (both study sites and comparators)</p>
Bandyopadhyay, S. and Shyamsundar, P. (2004). Fuelwood consumption and participation in community forestry in India. World Bank Policy Research Working Paper: 3331	Andhra Pradesh, Madhya Pradesh, Orissa, West Bengal, and Uttar Pradesh, India	<p><b>Type of CFM:</b> community forestry</p> <p><b>Measured outcome/s:</b> fuel wood collection.</p> <p><b>Comparator/s:</b> villages not participating in community forestry</p>	<p><b>Methodology:</b> analysis of secondary data from the 54th round of India's National Sample Survey</p> <p><b>Study site selection:</b> data from 5 states, selected on the basis that these had the largest number of forest user groups at the time of survey</p> <p><b>Participants/sub-site selection:</b> random stratified – c. 16 households randomly selected from each village. Comparator households matched (propensity score matching)</p>

Reference	Location	Project details	Methodology
Blomley, T., K. Pfliegner, et al. (2008). "Seeing the wood for the trees: an assessment of the impact of participatory forest management on forest condition in Tanzania." <i>Oryx</i> 42(3): 380-391. case study 1	Eastern, central and northern Tanzania	<p><b>Type of CFM:</b> Participatory forest management (9 Community-based and 12 joint-forest management)</p> <p><b>Measured outcome/s:</b> forest condition (basal area, volume increment and stems per ha)</p> <p><b>Comparator/s:</b> site comparison (1 open access and 1 local government management)</p>	<p><b>Methodology:</b> quantitative – Permanent sample plots - 246 across all 13 sites</p> <p><b>Study site selection:</b> not described</p> <p><b>Participants/sub-site selection:</b> not described</p> <p>Confounders not investigated</p>
Blomley, T., K. Pfliegner, et al. (2008). "Seeing the wood for the trees: an assessment of the impact of participatory forest management on forest condition in Tanzania." <i>Oryx</i> 42(3): 380-391. case study 2	Monogoro Rural and Kibaha Districts, Tanzania	<p><b>Type of CFM:</b> Joint forest management (3)</p> <p><b>Measured outcome/s:</b> resource extraction; human use/ disturbance and forest condition (number of trees dbh and height)</p> <p><b>Comparator/s:</b> site comparison (3 traditional state management)</p>	<p><b>Methodology:</b> quantitative – Transects (area sampled covers 0.4-0.6% of the total forest)</p> <p><b>Study site selection:</b> Paired by forest site</p> <p><b>Participants/sub-site selection:</b> random</p> <p>Confounders not investigated</p>
Blomley, T., K. Pfliegner, et al. (2008). "Seeing the wood for the trees: an assessment of the impact of participatory forest management on forest condition in Tanzania." <i>Oryx</i> 42(3): 380-391. case study 3	Eastern Arc Mountain, Tanzania	<p><b>Type of CFM:</b> joint-forest management (24)</p> <p><b>Measured outcome/s:</b> pole and timber harvesting</p> <p><b>Comparator/s:</b> site comparison (25 local or central government management)</p>	<p><b>Methodology:</b> quantitative – 477km of transects</p> <p><b>Study site selection:</b> not described</p> <p><b>Participants/sub-site selection:</b> not described</p> <p>Confounders not investigated</p>
Bray, D. B., Duran, E., Ramos, V.H., Mas, J.F., Velazquez, A., McNab, R.B., Barry, D., Radachowsky, J. (2008). Tropical Deforestation, Community Forests, and Protected Areas in the Maya Forest. <i>Ecology and Society</i> , 13(2)	The Maya Forest region, Mexico and Guatemala	<p><b>Type of CFM:</b> community forestry</p> <p><b>Measured outcome/s:</b> land use/ land cover change</p> <p><b>Comparator/s:</b> protected areas</p>	<p><b>Methodology:</b> quantitative – land-use and land cover maps constructed from satellite images</p> <p><b>Study site selection:</b> Maya forest region of Mexico and Guatemala. Selected on the basis of biophysical similarity and maturity of community forestry groups</p> <p><b>Participants/sub-site selection:</b> N/A – whole area studied</p>
Calderon, M. M. and A. A. Nawir (2006). "An evaluation of the feasibility and benefits of forest partnerships to develop tree plantations: case studies in the Philippines." CIFOR Working Paper (No.27): xi + 72 pp	Luzon, Mindanao, Viasayas regions, Phillipines	<p><b>Type of CFM:</b> community forest management</p> <p><b>Measured outcome/s:</b> NPV (net present value), IRR (internal rate of return)</p> <p><b>Comparator/s:</b> areas under Integrated Forest Management</p>	<p><b>Methodology:</b> quantitative – questionnaires and documentary (statistics obtained from reports)</p> <p><b>Study site selection:</b> non-random, selected on basis of accessibility and likelihood of response</p> <p><b>Participants/sub-site selection:</b> not clear, participants were "stakeholder groups"</p>



Reference	Location	Project details	Methodology
Dalle, S. P., de Blois, S., Caballero, J., and Johns, T. (2006). Integrating analyses of local land-use regulations, cultural perceptions and land-use/land cover data for assessing the success of community-based conservation. <i>Forest Ecology and Management</i> , 222(1/3): 370-383	Quintana Roo, Mexico	<p><b>Type of CFM:</b> community forestry</p> <p><b>Measured outcome/s:</b> land use/land cover change</p> <p><b>Comparator/s:</b> before/after</p>	<p><b>Methodology:</b> quantitative – land-use and land cover maps constructed from satellite images</p> <p><b>Study site selection:</b> Single ejido, X-Maben, in the Quintana Roo state of Mexico. Rationale for selection not described</p> <p><b>Participants/sub-site selection:</b> N/A – whole area studied</p>
Edmonds, E. V. (2002). Government-initiated community resource management and local resource extraction from Nepal's forests. <i>Journal of Development Economics</i> , 68(1): 89-115	Arun Valley, Nepal	<p><b>Type of CFM:</b> community forestry</p> <p><b>Measured outcome/s:</b> fuel wood collection</p> <p><b>Comparator/s:</b> households in communities without Forest User Groups</p>	<p><b>Methodology:</b> analysis of secondary data from 1995/1996 Arun Valley Living Standards (AVLS) survey and an administrative census of forest groups</p> <p><b>Study site selection:</b> Arun Valley, eastern Nepal. Rationale for selection not described</p> <p><b>Participants/sub-site selection:</b> N/A – all households surveyed as part of AVLS. Comparator households matched to control for observables</p>
Eeden, D. G. v., B. J. v. Rensburg, et al. (2006). "The value of community-based conservation in a heterogeneous landscape: an avian case study from sand forest in Maputaland, South Africa." <i>South African Journal of Wildlife Research</i> 36(2): 153-157	KwaZulu Natal province, South Africa	<p><b>Type of CFM:</b> Community-based natural resource management (recently nominated "Tshanini Community Conservation Area")</p> <p><b>Measured outcome/s:</b> sand forest bird assemblages</p> <p><b>Comparator/s:</b> site comparison (Tembe Elephant Park)</p>	<p><b>Methodology:</b> quantitative – Visual and auditory bird surveys</p> <p><b>Study site selection:</b> rare habitat</p> <p><b>Participants/sub-site selection:</b> not described</p> <p>Confounders not investigated</p>
Ellis, E. A. and Porter-Bolland, L. (2008). Is community-based forest management more effective than protected areas? A comparison of land use/land cover change in two neighboring study areas of the Central Yucatan Peninsula, Mexico. <i>Forest Ecology and Management</i> , 256(11): 1971-1983	Central Yucatan Peninsular, Mexico	<p><b>Type of CFM:</b> community-based forest management</p> <p><b>Measured outcome/s:</b> land use/land cover change</p> <p><b>Comparator/s:</b> protected areas</p>	<p><b>Methodology:</b> quantitative – land-use and land cover maps constructed from satellite images</p> <p><b>Study site selection:</b> Two adjacent areas within the Central Yucatan Peninsular Region, La Montana, Campeche, and Zona Maya, Quintana Roo. Areas similar in biophysical, landscape and community characteristics</p> <p><b>Participants/sub-site selection:</b> N/A – whole area studied</p>

Reference	Location	Project details	Methodology
Gautam, A. P., Webb, E. L., and Eiumnoh, A. (2002). GIS assessment of land use/land cover changes associated with community forestry implementation in the Middle Hills of Nepal. <i>Mountain Research and Development</i> , 22(1): 63-69	Kabhepalanchok district, Nepal	<p><b>Type of CFM:</b> community forestry</p> <p><b>Measured outcome/s:</b> land use/land cover change</p> <p><b>Comparator/s:</b> before/after; villages without formalised community forestry</p>	<p><b>Methodology:</b> quantitative – digitized land-use and land cover maps constructed from existing maps and ground-verified aerial photographs</p> <p><b>Study site selection:</b> Roshi watershed, Middle Hills, Nepal. Selected on the basis of representativeness and length of implementation of community forestry</p> <p><b>Participants/sub-site selection:</b> N/A – whole watershed studied</p>
Gautam, A. P., Shivakoti, G. P., and Webb, E. L. (2004). Forest cover change, physiography, local economy, and institutions in a mountain watershed in Nepal. <i>Environmental Management</i> , 33(1): 48-61	Kabhepalanchok district, Nepal	<p><b>Type of CFM:</b> community forestry.</p> <p><b>Measured outcome/s:</b> land use/land cover change</p> <p><b>Comparator/s:</b> before/after; government management</p>	<p><b>Methodology:</b> quantitative – land-use and land cover maps constructed from satellite images</p> <p><b>Study site selection:</b> Upper Roshi watershed, Middle Hills, Nepal. selected on the basis of representativeness and length of implementation of community forestry</p> <p><b>Participants/sub-site selection:</b> N/A – whole area studied</p>
Gautam, A. P. and G. P. Shivakoti (2005). "Conditions for successful local collective action in forestry: some evidence from the Hills of Nepal." <i>Society &amp; Natural Resources</i> 18(2): 153-171	Kabhrepalanchok district, Nepal	<p><b>Type of CFM:</b> community forestry (1)</p> <p><b>Measured outcome/s:</b> forest condition (perceived forest condition by users and forester, basal area, tree density, richness)</p> <p><b>Comparator/s:</b> site comparison (1 semigovernment)</p>	<p><b>Methodology:</b> quantitative – 30/40 forest plots (also used qualitative research methods)</p> <p><b>Study site selection:</b> the two sites were selected on the basis of governance and different changes in tree cover</p> <p><b>Participants/sub-site selection:</b> random</p> <p>Data shown on various geographic factors and discussion of historical degradation</p>
Gupta, R., S. K. Srivastava, et al. (2004). "Impact of participatory forest management on socio-economic development of rural people: A case study in Kodsi and Talaichittor villages of Dehra Dun District." <i>Indian Forester</i> 130(3): 243-252	Dehra Dun District, Uttaranchal State, India	<p><b>Type of CFM:</b> PFM</p> <p><b>Measured outcome/s:</b> sources of income, change in family income, savings, sources of fuel, fuelwood/fodder collection, distance covered/time spent in fuelwood/fodder collection), wheat &amp; paddy production</p> <p><b>Comparator/s:</b> before/after</p>	<p><b>Methodology:</b> Questionnaire survey, participatory rural appraisal, semi-structured interviews</p> <p><b>Study site selection:</b> random selection of 2 villages, method not reported, from all PFM villages in area</p> <p><b>Participants/sub-site selection:</b> purposive selection of households - quotas for ethnic group and income strata</p>

Reference	Location	Project details	Methodology
Grundy, I., J. Turpie, et al. (2000). "Implications of co-management for benefits from natural resources for rural households in north-western Zimbabwe." <i>Ecological Economics</i> (Amsterdam) 33(3): 369-381	Mzola State Forest, North West Zimbabwe	<p><b>Type of CFM:</b> joint forest management (JFM)</p> <p><b>Measured outcome/s:</b> net present value</p> <p><b>Comparator/s:</b> modelled 'no JFM' scenario</p>	<p><b>Methodology:</b> model - data for model gathered from studies (publ. and unpubl.) from Mzola or similar area in Zimbabwe plus from local officials and key informants - not clear if questionnaire used or not</p> <p><b>Study site selection:</b> not clear</p> <p><b>Participants/sub-site selection:</b> N/A – whole area studied</p>
Kassa, H., B. Campbell, et al. (2009). "Building future scenarios and uncovering persisting challenges of participatory forest management in Chilimo Forest, Central Ethiopia." <i>Journal of Environmental Management</i> 90(2): 1004-1013	Chilimo National Forest Priority Area, Ethiopia	<p><b>Type of CFM:</b> PFM.</p> <p><b>Measured outcome/s:</b> estimated average annual household income, sources of income</p> <p><b>Comparator/s:</b> modelled 'no PFM' scenario</p>	<p><b>Methodology:</b> model - data for model gathered from key informant interviews plus some other non-specified sources of data</p> <p><b>Study site selection:</b> not clear</p> <p><b>Participants/sub-site selection:</b> purposive selection of stakeholders for key informant interviews, to represent wealth/ age/FUG membership</p>
Kohlin, G. and G. S. Amacher (2005). "Welfare implications of community forest plantations in developing countries: the Orissa Social Forestry Project." <i>American journal of agricultural economics</i> 87(4): 855-869	Dhani Reserve Forest, Orissa, India	<p><b>Type of CFM:</b> community forest plantations</p> <p><b>Measured outcome/s:</b> time spent in collection, estimated value of this collection</p> <p><b>Comparator/s:</b> no community forest</p>	<p><b>Methodology:</b> quantitative – questionnaire survey</p> <p><b>Study site selection:</b> random selection of villages (method not reported)</p> <p><b>Participants/sub-site selection:</b> random selection of households (method reported)</p>
Kumar, S. (2002). "Does "Participation" in Common Pool Resource Management Help the Poor? A Social Cost-Benefit Analysis of Joint Forest Management in Jharkhand, India." <i>World Development</i> 30(5): 763-782	Northern Ranchi District, Jharkhand State, India	<p><b>Type of CFM:</b> JFM</p> <p><b>Measured outcome/s:</b> stems per ha extraction, Net Present Value</p> <p><b>Comparator/s:</b> government managed forest</p>	<p><b>Methodology:</b> quantitative – questionnaire survey, prices obtained from local markets</p> <p><b>Study site selection:</b> non random selection of villages (method not reported)</p> <p><b>Participants/sub-site selection:</b> random selection of households (method not reported)</p>

Reference	Location	Project details	Methodology
Maharjan MR., Ram Dakal T., Thapa Suresh K., Schreckenber K., Luttrell C., (2009). Improving benefits to the poor from community forestry in the Churia region of Nepal. <i>International Forestry Review</i> , 11(2):254-267	Central and Mid-Western Nepal	<p><b>Type of CFM:</b> community forestry</p> <p><b>Measured outcome/s:</b> annual per capita income, % income from forest-related activities, % income from community forestry, per capita costs of community forestry, composition of CFUG committees, perception of governance – some outcomes presented for different “well-being” groups</p> <p><b>Comparator/s:</b> no CF, before/after</p>	<p><b>Methodology:</b> Participatory Rural Appraisal (PRA) with groups and in village meetings, key informant interviews, structured questionnaire</p> <p><b>Study site selection:</b> non random selection of communities (method not reported)</p> <p><b>Participants/sub-site selection:</b> random selection of households (method not reported)</p>
Mishra, T. K. and S. K. Banerjee (1997). “An ecological reconnaissance of lateritic forest of South West Bengal.” <i>Advances in Forestry Research in India</i> 16: 1-43	South-West Bengal, India	<p><b>Type of CFM:</b> Joint forest management (6 coppice Sal forests)</p> <p><b>Measured outcome/s:</b> number and diversity of tree/shrub/herb species</p> <p><b>Comparator/s:</b> site comparison (Preservation plots)</p>	<p><b>Methodology:</b> 12 quadrats of different sizes at each site</p> <p><b>Study site selection:</b> random from 2 forest divisions</p> <p><b>Participants/sub-site selection:</b> random</p> <p>Confounders not investigated</p>
Nagendra, H. (2002). “Tenure and forest conditions: community forestry in the Nepal Terai.” <i>Environmental Conservation</i> 29(4): 530-539	Terai lowlands (Chitwan district), Nepal	<p><b>Type of CFM:</b> recently notified community forest (2)</p> <p><b>Measured outcome/s:</b> local residents perception of change, forester’s opinion, tree/sapling density, diversity, richness, diameter and height</p> <p><b>Comparator/s:</b> site comparison (3 national forest and national park)</p>	<p><b>Methodology:</b> 20 - 40 forest plots per forest and evaluation by a forester (also interviews with users)</p> <p><b>Study site selection:</b> selected to cover a range of altitudes and paired by common user groups</p> <p><b>Participants/sub-site selection:</b> random</p> <p>Confounders not investigated</p>
Nagendra, H., Pareeth, S., Sharma, B., Schweik C. M., and Adhikari K. R. (2008). Forest fragmentation and regrowth in an institutional mosaic of community, government and private ownership in Nepal. <i>Landscape Ecology</i> , 23(1): 41-54	Chitwan Valley, Nepal	<p><b>Type of CFM:</b> community forestry; and “buffer zone management” (also described as co-management)</p> <p><b>Measured outcome/s:</b> land use/land cover change</p> <p><b>Comparator/s:</b> “park periphery”; “surrounding landscape”</p>	<p><b>Methodology:</b> land-use and land cover maps derived from satellite images</p> <p><b>Study site selection:</b> area in the Chitwan Valley selected on the basis that the landscape contains a representative “institutional mosaic”</p> <p><b>Participants/sub-site selection:</b> N/A – whole area studied</p>

Reference	Location	Project details	Methodology
Niesenbaum, R. A., M. E. Salazar, et al. (2005). "Community forestry in the Mayan Biosphere Reserve in Guatemala." <i>Journal of Sustainable Forestry</i> 19(4): 11-28	Mayan Biosphere Reserve, Guatemala	<p><b>Type of CFM:</b> community forestry</p> <p><b>Measured outcome/s:</b> annual income generation from CF, participation in CF, mean annual incremental growth rates, size-class distribution of trees, mean abundance of saplings</p> <p><b>Comparator/s:</b> Livelihood outcome - before and after. Forest management outcomes - compares harvested plots with control plots within same forest</p>	<p><b>Methodology:</b> 20 permanent harvest plots, questionnaire survey</p> <p><b>Study site selection:</b> not clear - part of biosphere reserve and MAB programme</p> <p><b>Participants/sub-site selection:</b> not reported for harvest plots, random (method not reported) for survey</p>
Somanathan, E., Prabhakar, R., and Mehta, B. S. (2009) Decentralization for cost-effective conservation. <i>PNAS</i> , 106: 4143 - 4147	Central Himalayas, India	<p><b>Type of CFM:</b> council forest management</p> <p><b>Measured outcome/s:</b> forest cover; crown cover</p> <p><b>Comparator/s:</b> areas under state management</p>	<p><b>Methodology:</b> digitized land cover map derived from satellite image</p> <p><b>Study site selection:</b> 10 adjoining areas in central and eastern Uttarakhand</p> <p><b>Participants/sub-site selection:</b> N/A – all 271 villages (and adjoining forests) in study area. Addressed issue of potential confounding using three approaches: an examination of the influence of spatial proximity, multiple regression with a number of explanatory variables, and propensity score matching</p>
Sreedharan, C. K. and Dhanapal, K. (2005). Monitoring of Tamil Nadu Afforestation Project (TAP) using IRS 1D satellite imagery - a case study in Jothinagar Village, Tiruvannamalai District, Tamil Nadu. <i>Indian Forester</i> , 131(6): 735-740	Tiruvannamalai district, Tamil Nadu, India	<p><b>Type of CFM:</b> joint forest management</p> <p><b>Measured outcome/s:</b> land use/land cover change</p> <p><b>Comparator/s:</b> before/after</p>	<p><b>Methodology:</b> land cover maps derived from satellite images</p> <p><b>Study site selection:</b> A single village, Jothinagar Village in the Tiruvannamalai District, Tamil Nadu selected for study</p> <p><b>Participants/sub-site selection:</b> N/A – whole village area studied</p>

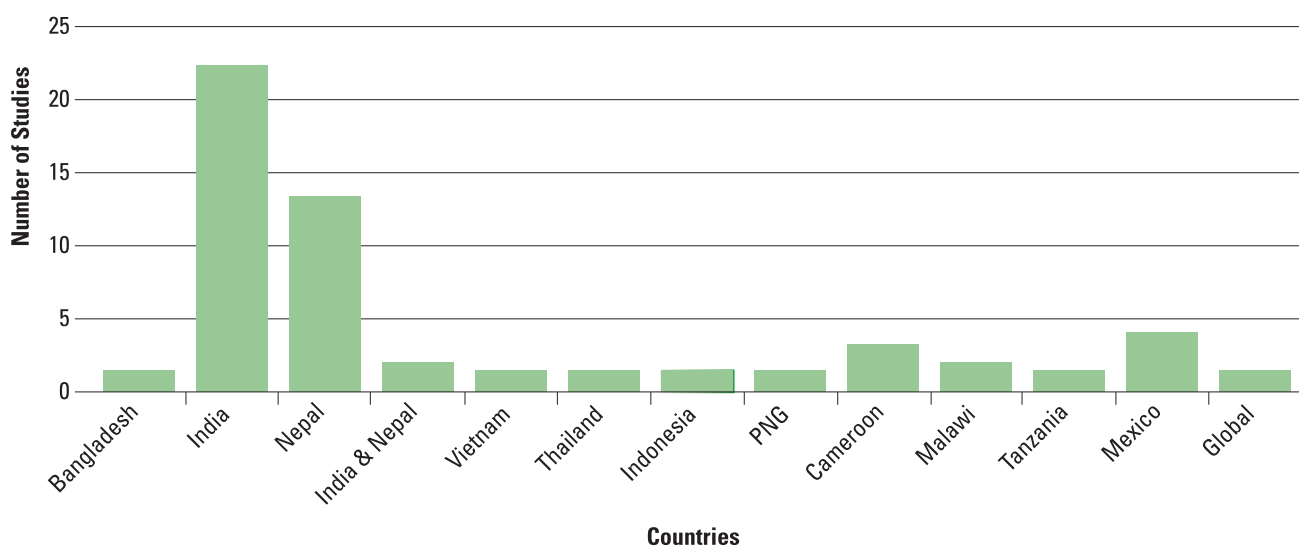
## 8.5. APPENDIX E – Characterisation of studies without appropriate comparators

The following figures present the frequency of studies without relevant comparators for different countries and different outcomes.

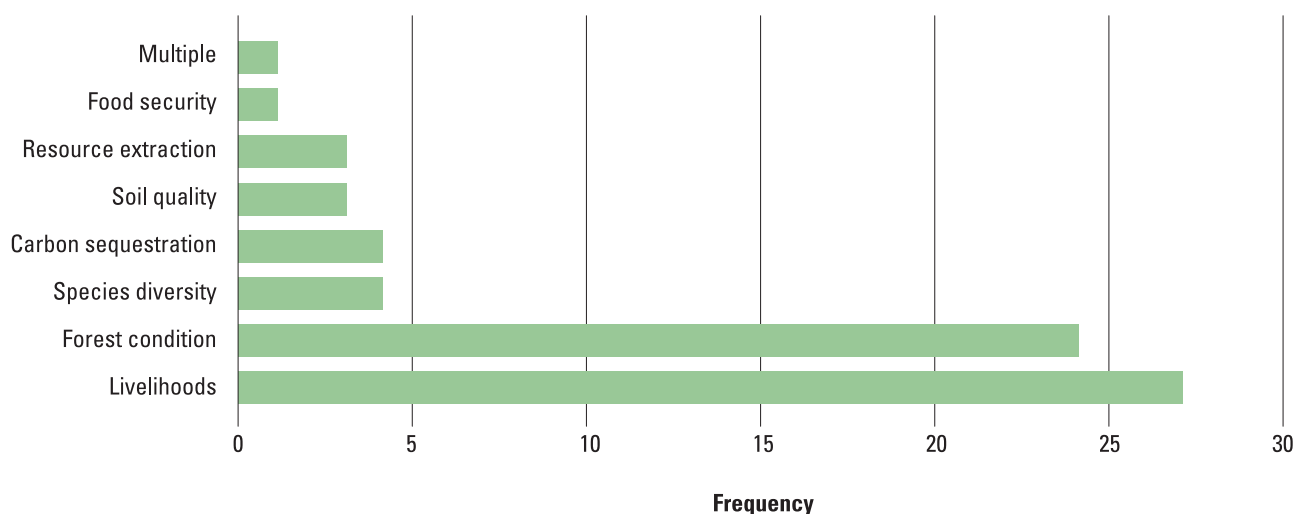
The distribution of studies is broadly similar to that of studies included in this review, with most studies in India and Nepal.

The number of studies in different outcome categories shows that more livelihood studies have been conducted without the use of a comparator. Some outcomes, such as carbon sequestration and food security were found in studies without comparators but not in any study with a comparator; for this reason, no studies with these outcomes were included in the review.

### Frequencies of Countries Studied



### Frequencies of Broad Outcome Categories





# Scientific and Technical Advisory Panel

The Scientific and Technical Advisory Panel, administered by UNEP, advises the Global Environmental Facility



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