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The Economy and Environment Program for Southeast Asia (EEPSEA) was established in May 1993 to support training and research in environmental and resource economics across its 9 member countries: Cambodia, China, Indonesia, Laos, Malaysia, Papua New Guinea, the Philippines, Thailand, and Viet Nam. Its goal is to strengthen local capacity for the economic analysis of environmental problems so that researchers can provide sound advice to policymakers.

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Is Community Forestry The Way Forward? — A Case Study From Cambodia

EEPSEA POLICY BRIEF ¥ No. 2010-PB10

In Cambodia, past attempts at forest management have proved to be unsustainable and have contributed to a significant decline in the country's forest cover. In recent years, the country's authorities have responded by introducing a major Community Forestry (CF) programme that aims to enhance community involvement in forest management. To see whether this scheme is worth supporting, →

A summary of EEPSEA Research Report No. 2010-RR10: 'A Cost and Benefit Analysis of the Community Forestry Project in Chumkiri District, Kampot Province, Cambodia' by Kalyan Hou, Sothunvathanak Meas, Mared Im, Chanthy Ros, and Han Keam; CBNRM-Learning Institute, No.30 Street 9 Tonle Basac, P. O. Box 2509, Phnom Penh, Cambodia.
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The CF Conservation Option ...provides the most benefits.”

→ a new EEPSEA study has analysed the costs and benefits of the CF management scheme in one area of the country.

The study is the work of a team led by Kalyan Hou from the CBNRM-Learning Institute in Phnom Penh, Cambodia. It examines three CF management scenarios and compares them to the base-line Non-CF management approach. It finds that the CF Conservation Option, in which only a restricted forest zone is exploited, is the approach that provides the most benefits to local communities and to the environment. The study therefore recommends that Cambodia should strengthen its plans for CF in the future.

The Cambodian Forest Challenge

From 1973 to 1976, the forests of Cambodia covered approximately 12.7 million ha, or 72% of the country's total land area. However, the pace of forest exploitation started to increase in the late 1980s. By 2002, the total area covered by forests had decreased to 10.4 million ha (57% of the country's total land area).

In response to this significant challenge, the government started to look for new approaches to forest management that would make forestry in the country more environmentally sustainable and improve the benefits that society receives. Community Forestry (CF) was highlighted as a potential alternative (or complement) to forest concession management and a CF programme was developed.

Broadly speaking, CF aims to support and empower communities to continue to use forest resources in a traditional and sustainable manner. It is also a strategy for poverty reduction for the Royal Government of Cambodia. As an alternative management system, CF enables the effective participation of local people and communities in managing forest resources by focusing on the forest resources on which they depend.

So far, 441 CF areas have been registered. The amount of forest covered by the CF management scheme now totals over 388,721 ha and it involves over 411,000 people. (However, there are only 234 CF cites that is approved by the Ministry of Agriculture Forestry and Fisheries. These cover a total area of 235,062 ha.) Most of these CF areas were established with the support of local NGOs, international organizations and government agencies.

Is Community Forestry Working?

To find out whether CF is an effective and sustainable approach to forest management, the study assesses the costs and benefits that the CF approach provides to local people and other key stakeholders. As already mentioned, the CF management approach was also compared with the base-line 'Non-CF' approach.

One principal objective of the study was to identify the best practical options for preserving the forest cover from degradation.

Three CF management options were therefore assessed. These three options were:

- 1) The Conservation Option
Under this management scheme the forest is divided into a conservation zone and a multiple use zone. Only the forest in the multiple use zone is opened up for exploitation. This zone is divided into five parts, and forest products are collected from each zone in a five-year rotation.
- 2) The Exploitation Option
Under this scheme the forest is divided into five zones. These are exploited in a rotation pattern every five years.
- 3) The Combined Option
This scheme combines the features of the conservation and exploitation options. In this case, the conservation zone makes up only one third of the total forest area; the remaining area is fully exploited under a 5-year rotation.

Costs and Benefits

The study looks at both the direct and indirect use values of the forest in both the CF and Non-CF areas. Direct values include Non-timber forest products (NTFPs) and timber forest products. The indirect values of the forest include the role it plays in watershed management, soil erosion and environmental protection. Other indirect services that were assessed include the value of carbon sequestration and biodiversity gains.

Cost-benefit analysis was used to estimate the incremental net benefit of the three CF management options relative to the base case scenario (Non-CF management). The study ranked the three options in terms of the incremental net benefit over the base case.

Present value (PV) of incremental net benefit, ranked by most benefits

	NPV Net Benefit (USD million)	Incremental Net Benefit (USD million)	Benefit Cost Ratio
Conservation Option: CF Management scheme	5.48	1.48	7.67
Combined Option: CF Management scheme	4.93	0.93	5.97
Base case: (Non-CF Management scheme)	4.00	0.00	5.25
Exploitation Option: CF Management scheme	3.85	0.15	4.32

Source: Field Survey in 2007

The Research Areas

The research for the study was conducted in two communities: one in an area where the forest was primarily managed under the CF approach and one in a region where there was no CF management. The CF and Non-CF sites were both in Chumkiri District, Kampot Province. They were chosen so that they had similar population densities and accessibility. The size of forest and the level of villagers' livelihoods in both areas were also broadly comparable.

The CF area the study assessed is in Srae Khnong commune. The CF programme in this commune was developed in early 2001 and covers 992 ha of degraded forest. Three villages in the CF area were selected for the study. These were Prey Yav, Tbaeng Pok and Damnak Snoul. The forest area not under CF management is in Chumpouvoan commune. Three villages in this area were involved in the study. These were Damrei Koun, Kandal and Thmei.

Surveys and Focus Groups

The study used both primary and secondary data from both forest areas (CF and Non-CF). Secondary information was gathered from existing reports, official records and research papers. Primary information was collected through household surveys, focus group discussions (FGDs) and direct community observation.

For example, household information was collected from a survey of 137 randomly selected households; these comprised 69 households from the CF area and 68 households from the Non-CF area. The households were asked about how they utilized the forest and where they sold the timber and non-timber products they obtained from it. There were 55 participants in the focus group discussions: 27 people from the Non-CF area and 28 people from the CF area. FGDs took place for one and half days in each site.

The Base-line Scenario

Based on the interviews and observations of the villagers in the Non-CF study area, it was found that before 1998 the region was covered by primary forest that was rich in many wood species and biodiversity. Now, the forest area is gradually being degraded by human activities such as the illegal harvesting of forest products and the burning of the forest for farming.

The focus group discussions with commune members indicated that soil erosion was a problem in the Non-CF area. The respondents believed that when the forest was cleared, raindrops were able to directly strike the exposed topsoil and that this had led to soil loss. They also said that erosion washed away organic matter, microorganisms and other important nutrients needed for plant growth, which in turn decreased crop production.

A total of 627 households were involved in the Non-CF management scheme of the Chumpouvoan commune. The commune annually extracts a total of 4,210 m³ of timber and 2,269 m³ of firewood from open access forest. Generally, people in the Non-CF area collect NTFPs for sale. They also gather wild fruits and traditional medicines for household consumption. The value of NTFPs in the Non-CF market is USD 36,958.

Based on these finding, the study calculates the present value of total benefits that the Non-CF managed forest provides for local people (including the value of carbon sequestration and biodiversity gains). Over a 30-year period, at a 10% discount rate, this would be about USD 7,876 per household.

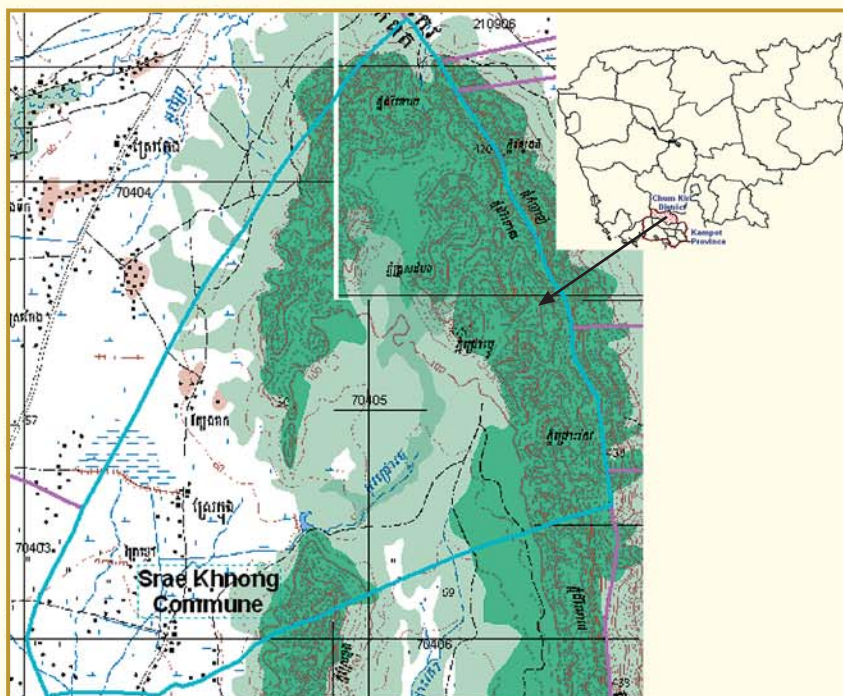
The CF Management Options

A total of 633 households were involved in the CF management scheme in Srae Khnong commune. The results of the focus group discussion in the commune indicate that soil erosion is not yet a big problem. The respondents reported that in the past, sandy soil was always a problem for their farms near the mountain because, when the rain eroded sandy soil from the mountain top, their production of rice and other crops was very low. Sometimes, the sand production of rice and other crops was very low. Sometimes, the sand made it difficult for them to cultivate rice and other crops such as corn, beans, watermelons and cucumbers. They believed that the CF scheme had helped reduce soil loss and erosion rates.

The members of the CF commune gather a wide range of forest products. For example, the survey shows that 80% of the households collected fuel wood. Most of them also gather mushrooms and bamboo.

In the first management option (the Conservation Option) the revenue received by the CF commune from sales of forest products, over a 30-year period would be USD 0.76 million. Over the same time period, the present value of total benefits (including the value of carbon sequestration and biodiversity gains) would be about USD 9,950 per household. For the second option (the Exploitation Option) the revenue from forest product sales would be USD 2.33 million and the present value of total benefits would be about USD 7,920 per household. For the third option, which combined the Conservation and Exploitation Options, the revenue would be USD 1.53 million and the present value of total benefits would be about USD 9,350 per household.

Location of the CF site in the Srae Khnong commune



CF Should Be Promoted and Expanded

Overall, communities were shown to benefit from CF in the long-term. Through the CF, they learned that it was vital to encourage biodiversity, to increase the community's wealth and to prevent the forest from being degraded. Most importantly, they learned that the key rule in sustainability is to preserve the forest cover for future generations.

The study shows that the Conservation Option in a CF area offers the greatest overall benefits to society and also contributes to environmental conservation by, for example, limiting soil loss. Of the three different CF options, the Conservation Option turned out to be the most economically viable, followed by the Combined Option. The Exploitation Option was the least economically viable.

A sensitivity analysis showed that the Conservation Option ranked first even if there were higher prices for timber and Non-timber products, and if project duration and discount rates changed.

The study therefore recommends that the Cambodian government should strengthen plans for CF in the future (this should be feasible as now CF is one of the government policies aimed at reducing poverty, as well as helping forest cover to reach the national goal of 60% forest cover by 2030). It also suggests that further research could be done on this subject to help implement the concept and refine CF management practices and rules. The survey's results and recommendations should be useful to policy makers and agencies working in forest management in Cambodia as they develop plans for forestry in the country.

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