



## ASSESSING COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT EFFECTIVENESS IN SIEM REAP PROVINCE, CAMBODIA

By Hem Chanthou



### ABSTRACT

Throughout the 1990s, the Cambodian forestry sector was in a state of crisis due to widespread illegal logging, corruption, ambiguous forest laws and concession agreements, and weak management and law enforcement. Until the late 1990s, responsibility for natural resource management in Cambodia was vested in two line ministries: the Ministry of Environment, in charge of forest within the protected areas, and the Ministry of Agriculture, Forestry and Fisheries, which was responsible for protected forests both within and outside of the protected areas. Recognising the limitations of this centralised management system, beginning in 2000, the Royal Government of Cambodia has made strong efforts to reform the forestry sector by promoting community-based natural resource management (CBNRM) through two main forms: community protected areas (CPAs), and community forestry (CF).

CF and CPAs have been established for well over a decade now, particularly in Siem Reap province, yet there is no specific evidence on the effectiveness of their operations, or on the level of the socioeconomic benefits gained by CPA and CF members from their participation in CBNRM. This study investigates these issues in one CPA

(Popel in Khnang Phnom commune) and one CF area (Thbaeng Lech in Thbaeng commune), both in Siem Reap province.

Five questionnaires were developed to obtain information from five different respondent groups. Field interviews were conducted in two rounds. The first round in April 2012 collected information from 73 households (21 CPA and 52 CF members) and key informants. The second round – to validate the data – was carried out in May 2012.

The assessment reveals that although project partners established CPA Popel in accordance with government policy, community members were not fully aware of their roles and responsibilities in the CBNRM process. Similarly, CF Thbaeng Lech was also established by development partners in line with government policy; in contrast to CPA Popel, however, community members were fully engaged in CBNRM activities. Overall, the results show that the management and operation of CPA Popel is “Less Effective” while that of CF Thbaeng Lech is “Highly Effective” in delivering resource conservation and livelihood improvement services. The majority of CPA members in Popel are poor while more CF members in Thbaeng Lech are better off. The contribution of forest and non-timber forest products to household livelihoods in CPA Popel is high while that in CF Thbaeng Lech is low.

Although the contribution of forestry and non-timber forest products to livelihoods in the CPA area is high, the actual benefits accruing to each CPA member is a cause for concern as 76 percent of the members said that they receive either low or very low benefits.

Hem Chanthou is a Senior Project Officer at the Asian Development Bank Cambodia Resident Mission. This paper draws on research undertaken as part of the Master’s degree programme at the Graduate School of the Royal University of Agriculture (RUA), Phnom Penh. Recommended full citation: Hem Chanthou (2014), *Assessing Community-Based Natural Resource Management Effectiveness in Siem Reap Province, Cambodia*, Development Research Forum Synthesis Report, April 2014, No. 4, [www.drfcambodia.net](http://www.drfcambodia.net)

## 1. RATIONALE

### 1.1. Introduction

Forests play an essential role in supporting rural livelihoods in Cambodia. Forests and non-timber forest products (NTFP) provide wood-fuel for cooking, timber for construction, materials for tools and household (HH) items, resins, vines, wild fruits and vegetables, livestock fodder and medicinal plants. Rural Cambodians also benefit from a range of important non-extractive forest values. These include cultural and spiritual values, a rich heritage of diverse flora and fauna, and vital ecological services.

Throughout the 1990s, the Cambodian forestry sector was in a state of crisis due to widespread illegal logging, corruption, ambiguous forest laws and concession agreements, and weak management and law enforcement (McKenney and Prom 2002). As a result, by 2010 forest cover had declined to 57 percent of the country's territory (FA 2011a) from 75 percent in 1965.

Until the late 1990s, natural resource management (NRM) in Cambodia was totally vested in the responsibilities of two line ministries: Ministry of Environment (MOE) – for forest within the protected areas (PAs), and Ministry of Agriculture, Forestry and Fisheries (MAFF) – for protected forest and forests outside of the PAs. Despite their significant contribution to rural livelihoods, natural resources were managed without the active participation of rural communities.

In the early 2000s, the Royal Government of Cambodia (RGC) reformed the agricultural sector to engage communities in NRM. A new Forest Law promulgated in 2002 gave the Forestry Administration (FA) authority to grant areas of production forest in the permanent forest estate to local communities. Shortly afterwards, in 2003, the Sub-Decree on Community Forestry (CF) Management was approved. In the same year, the MOE issued a proclamation to encourage villagers who live in or near the PAs to manage parts of those PAs through organising community protected areas (CPAs). Since then, several CPA and CF initiatives have emerged as a means to foster local participation in NRM and to improve local livelihoods.

CF and CPAs, particularly in Siem Reap province, have been established for over 10 years now, yet there is no up-to-date information on their effectiveness or the level of socioeconomic benefits the CPA and CF members gain from participating in these CBNRM activities. To help address that knowledge gap, the study investigates these issues at one CPA (Popel in Khnang Phnom commune) and one CF area (Thbaeng Lech in Thbaeng commune) in Siem Reap province.

### 1.2. Objectives of the Research

The objectives of the study are to: (i) understand the reasons and the processes for establishing the CPA and the CF area; (ii) assess the effectiveness of CPA and CF management and operations; and (iii) examine the benefits gained by the community members from participating in CBNRM.

### 1.3. Scope and Limitations of the Study

There are several models of local community involvement in NRM in Cambodia. Due to time and resource constraints this research focused on only two types – CPA and CF, both in the same province. Note that CPAs come under the jurisdiction of the MOE and CF areas are under the FA, as per the classification of forestland under Cambodia's Law on Forestry.

To assess the effectiveness and benefits of CBNRM, the study selected CPA and CF initiatives that had been established for at least five years.

This study used both primary and secondary data. Primary data was collected by interviewing 73 households (HHs) – 21 CPA members and 52 CF members. Semi-structured interviews were employed to obtain information from provincial-level government officials responsible for CF and CPAs. Secondary data was collected from a desk review of various documents and reports such as from the National Committee for Sub-National Democratic Development (NCDD), FA of MAFF, MOE, NGOs and development partners.

As of 2011, there were 102 CPAs comprising 24,887 HHs and covering a total forested area of 134,279 ha (MOE 2012), and 281 CF areas formally recognised by MAFF involving 68,739 HHs and occupying 244,265 ha of forestland

(FA 2012). Due to time and budget constraints, the sample size consists of a limited number of key informants and HHs in one CPA and one CF area. Therefore, the scope of the study is limited.

#### 1.4. Literature Review

The centralised system of forest management in Cambodia did not consider local rural people's needs and resulted in the destruction of valuable forest (Henderson 2005). In response, in 2000, a reform in the forest law provided more scope for participation from local users in terms of rights and responsibilities in forest management, as defined in the 2002 Law on Forestry, the 2003 Sub-Decree on Community Forestry Management and in regulatory frameworks such as the 2008 Protected Areas Law (Henderson 2005).

The Protected Areas Law (RGC 2008) defines a PA as “an area of the State's public property in land or water territories, including coast and sea, located in the area established by a Royal Decree or a new area established under the jurisdiction of the Ministry of Environment. These areas are of physical and biological importance which requires management by law with the purpose of protecting and maintaining biological, natural and cultural resources, and shall be sustainably managed in every generation for environmental, social and economic benefits.”

A CPA, as defined in the Protected Areas Law (RGC 2008: 18), refers to the “Participation of local community or indigenous ethnic minorities in an elected form of administrative structure, recognized by the Natural Prevention and Conservation Administration, with the joint purpose of management and sustainable use of natural resources in a particular part of the protected area, aimed at promoting the standards of living of the local community and indigenous ethnic minorities.” The MOE produced draft guidelines for establishing CPAs in 2009 (MOE 2009). However, as of March 2014, the CPA guidelines had still not been finalised.

The Sub-Decree on Community Forestry Management (RGC 2003: 3) defines a CF group as a “Community that voluntarily initiates to form

a group under a Community Forest Agreement in order to conduct development activities and use forest resources in a sustainable manner within a Community Forest in compliance with the provisions of the Forestry Law.”

In CBNRM, local communities are responsible for the management of local resources. Carson *et al.* (2005:37) define CBNRM as “a diversity of co-management approaches that strive to empower local communities to participate actively in the conservation and sustainable management of natural resources.” The authors point out, however, that most CBNRM initiatives in Cambodia are more controlled by government than by communities.

The Asian Development Bank Guidelines for Preparing Performance Evaluation Reports (ADB 2006: 9) state that “Effectiveness describes the extent to which the outcome, as specified in the design and monitoring framework, either as agreed at approval or as subsequently modified, has been achieved.” There are four rating levels, from 0 to 3 in this order: ineffective, less effective, effective, and highly effective.

Agronomes et Vétérinaires Sans Frontières Cambodia (AVSF 2012), an NGO working in agriculture and rural development, developed a method to assess the capacity of farmer organisations by looking into five key aspects of community organisations: management, finance, identity, communication, and activities of the organisations being assessed.

#### 1.5. Research Methodology

This research covered one CPA – Popel in Khnang Phnom commune, Svey Leu district, and one CF area – Thbaeng Lech in Thbaeng commune, Banteay Srey district, both in Siem Reap province.

Households in CPA Popel and CF Thbaeng Lech were selected for interview using stratified random sampling (Yemane 1967): a total sample of 73 HHs was selected. The sample size in each commune was proportional to the total number of HHs in each area, resulting in a sample of 21 HHs in CPA Popel and 52 HHs in CF Thbaeng Lech.

Five questionnaires were developed to obtain information from five different respondent groups (government/NGO officers, commune chiefs, village heads, CPA chief, community members and focus group discussants). Two rounds of field interviews were conducted. The first round was carried out in April 2012, with the assistance of four enumerators, to interview the 73 HHs and key informants. The second round was conducted in May 2012 to validate the data.

Secondary data was collected from the NCDD commune database and from various documents and reports of the MOE, FA/MAFF, line departments, and NGOs with an active presence in the target areas.

Field survey data was coded and then stored on computer. Descriptive statistics like mean, standard deviation, percent and frequency were used to describe respondents' socioeconomic status. Data entry and analysis was performed using SPSS and Excel. Rich descriptive, historical transects and trends analysis was applied to explore and understand local people's perceptions of benefits or changes.

To evaluate the effectiveness of CPA and CF, the extent to which the objectives, as specified in the CPA and CF agreements, had been or will be achieved was assessed. The study adapted the AVSF framework (AVSF 2012) that was used to assess the effectiveness of farmer organisations' management and operations between 2007 and 2010. The framework considers five key areas of the organisation: management, finance, identity, communication and activities. Using the adapted effectiveness assessment framework, organisations are scored out of 100 as follows: management, 40 points; finance, 18 points; identity, 18 points; communication, 13 points; and activities, 11 points. The assessment rating of 0 to 3 used in ADB's evaluation guidelines (ADB 2006) was adapted and the scale modified to 0 to 100. Thus the effectiveness ratings are classed as: ineffective, 0-24; less effective, 25-49; effective, 50-74; and highly effective, 75-100.

## 2. RESULTS AND DISCUSSION

### 2.1. Findings for Community Protected Area (CPA) Popel

CPA Popel, also known as CPA Popel Prey Thom, lies within Popel village, Khnang Phnom commune, Svay Leu district, Siem Reap province. All HHs in Popel are CPA members. In 2003 there were 59 members, and at the time of study in April 2012 there were 75. The CPA was granted 189 ha of forestland within Preah Cheyavaraman Norodom National Park.

It was found that CPA Popel was established as a result of external factors; there was not enough evidence to suggest that internal factors had also played a part. External factors included government policy and the strong forest sector reform. There were multiple pressures on forests within the Cambodian National Parks System. Yet despite efforts by the Provincial Department of Environment, supported by development partners such as the Food and Agriculture Organisation (FAO) and the Danish International Development Agency (DANIDA), to engage communities living in the protected areas to undertake natural resource conservation, there was no evidence of internal factors, that is, community efforts and initiatives, playing a role. In the past, local people could move freely from one place to another within the CPA and use forest resources at will. Suddenly they were faced with the introduction of a new management regime that restricted their access to natural resources while others outside the community, some with good connections, were reportedly able to ignore the new regulations.

#### 2.1.1. Effectiveness Assessment of CPA Popel

Based on the effectiveness rating (described in the methodology section) and data analysis, the operations management capacity of CPA Popel was assessed as "Less Effective" (42/100) in delivering the services and activities stipulated in its statute. The following points break down this result into the five key areas:

**1. Management is weak:** Although the CPA committee has a very clear organisational structure, only a few people knew about it. During the focus group discussion, nobody knew that the CPA even had a statute. It was

found in a pile of papers belonging to the chairman of the CPA committee, who did not know that he had it as he could not read or write. The list of CPA members is part of the statute that had been fully endorsed by local and national authorities. The wording in the statute was difficult to understand because it was too technical.

2. **Financial management is weak:** The CPA committee does not have any capital to contribute to the inputs provided by supporting agencies. As there is no capital to manage, the committee members have had no experience in making financial reports. Neither the commune council nor other agencies had provided any financial support in the few years prior to study.
3. **Identity is just above average:** The CPA committee does not have an office, so people usually meet beside the house of the chairman. However, as the village has a community hall, the CPA members can hold meetings there. There is an administrative map, prepared by the MOE, and visible concrete poles clearly demarcate the boundaries of the forestland within the CPA. This CPA is recognised by all authorities at the subnational level as well as by the MOE.
4. **External communication is weak:** This is characterised by very limited contact with outsiders, including NGOs, to get financial and technical support.
5. **Activity aspect is weak:** Many activities stipulated in the statute were not implemented to a satisfactory level. The CPA committee consists of nine members who sometimes carry out patrolling activities. They said that they did not know if they had to protect the forests, and that some powerful people could come into their forest and log the trees at will.

### 2.1.2. Other Findings

Most HH heads are illiterate, there is an average of 3 dependents per HH, and average HH size is 5 persons with a standard deviation of 1.6. Women constitute around 55 percent of the total number of household members. About 62 percent of the respondents had no formal education while the remaining 38 percent had completed only grade

1; they could not read or write properly. About 90 percent of the respondents said that they lacked food for at least one month every year. During the field visit, the World Food Programme was providing food aid to local people.

Agriculture and NTFPs are the main sources of income for CPA members. The average annual income is 3.4 million riels, in a range of 0.6 million to 9.1 million riels.<sup>1</sup> The main source of income is agriculture, representing about 84 percent of total income, followed by forestry and NTFPs (11 percent of the total). Household consumption of wood, fruits and plants from the forest is not included as income for this research.

In terms of benefits from their participation in CPA activities, just under half (48 percent) of the members gained low benefits, around 29 percent very low benefits, and 24 percent received neutral benefits. Those with low and very low benefits said they were free to use forest resources as they wished before the CPA was established.

Approximately 67 percent of the members wanted the CPA to continue and 33 percent could not decide. Those who wanted the CPA to continue believed that they would benefit if the management of the CPA could be improved, while those who were undecided said that the CPA was badly managed and they were not confident that they would benefit even if the management improved.

When asked if they had suffered any negative impacts from the CPA, about 85 percent said that they had not, and the remaining 15 percent said that they had. The negative impacts were a lack of access under the new rules. They also said that non-community members who had strong links with officials could come into the CPA and log the trees and nobody dared to stop them.

Forty-three percent of the respondents said that the forest quality had remained stable, 38 percent said it had declined, and 19 percent said it had improved. Those who said the forest quality had declined also reported illegal logging activities in the CPA.

<sup>1</sup> 1 US dollar = 4000 riels

## 2.2 Findings for Community Forest (CF) Thbaeng Lech

CF Thbaeng Lech (also known as CF Prey Khbal Teuk) is within Thbaeng Lech village, Thbaeng commune, Banteay Srey district, Siem Reap province. All HHs in Thbaeng Lech village are CF members. As of January 2012, CF Thbaeng Lech had 189 HHs (873 persons). The community has been allocated 210 ha of forestland. The recently improved laterite roads in Thbaeng commune give easy access to the village. The distance from the commune to the district centre is 16 km and that to the provincial town is 45 km.

Both external (government policy and forestry sector reforms) and internal factors (strong interest from villagers and local authorities) led to the establishment of CF Thbaeng Lech. According to a Forestry Cantonment officer, when local people learned that they could participate in CBNRM they started forming groups, elected a management committee and drafted bylaws following the FA Community Forestry Guidelines. The process of getting official recognition at subnational level was completed in 2001. This included obtaining endorsements from the chief of Thbaeng commune, the governor of Banteay Srey district, the chief of the Forestry Office, the director of the Department of Agriculture, and the provincial governor. Finally, the CF Agreement with MAFF was signed in November 2007. The initial condition of the forest when it was handed over to the community was very poor, and most of the large trees had been felled. Many people including powerful military personnel had taken advantage of the opportunity to grab and clear forestland for agriculture or speculation.

### 2.2.1. Effectiveness Assessment of CF Thbaeng Lech

The operations and management capacity of CF Thbaeng Lech was assessed as “Highly Effective” in delivering the activities stipulated in its statute and in the CF Agreement:

**1. Management is excellent:** There is a very clear organisational structure, and all the CF members know about it. The village chief and commune chief recognise CF members, and the CF initiative has been fully endorsed by the FA. The management team has clear

management tools, and activities are carried out in a systematic manner.

- 2. Financial management is very good:** The CF committee has about 11 million riels as a revolving fund. It had reportedly received financial support of 4.5 million riels from an FAO-funded project in 2005 to start a community fund. More recently the CF committee made 3 million riels from selling 30,000 young trees for housing construction, and their revolving fund earned another 3.5 million riels in interest. Their forests have improved to a point where they can now sell wood from time to time to generate capital, and improve the growth of the remaining trees.
- 3. Identity aspect is very good:** The CF committee has an office, constructed in 2005 under a DANIDA-financed project, which is well maintained. There is an administrative map prepared by the FA, and the committee presents this map regularly to outsiders.
- 4. Communication is excellent:** Committee members maintain excellent contact with NGOs and other agencies so that CF members can have continued access to financial and technical support.
- 5. Activity aspect is very good:** CF members regularly carry out conservation activities; they have planted 4500 trees since 2000, some of which are now 5 metres high. Committee members have been proactive in protecting the CF areas, and have stopped people from cutting down trees. The forests were degraded when handed over to the community as all the big trees had been logged, though some of the stumps are regenerating into new trees. The committee has also provided livelihood assistance to CF members. Most members respect the rules and regulations and do not encroach on the CF area. However, some members cut trees in other places, such as in CPA Popel, where the law enforcement is weak.

### 2.2.2. Other Findings

Most HH heads are literate, there is an average of 3 dependents per HH, and average HH size is 5 persons with a standard deviation of 1.8. Women make up around 54 percent of the total number

of CF household members. About 44 percent of respondents had no formal education, 40 percent had 1 to 3 years of schooling, 8 percent had attended school from grade 4 to 6, and 8 percent from grade 7 to 12.

When asked to rate the benefits gained from participating in CF, 52 percent said that they received high benefits, 25 percent said neutral, 15 percent said low, 6 percent said very high, and just 2 percent received very few benefits. This reflects the degraded state of the forest before the establishment of CF when they received few, if any, benefits. Specific benefits to date include wood to build houses (for about 60 families) and shelters for traditional ceremonies/weddings (20 families). Now that the forests are regenerating, local people have better access to forests and NTFPs.

On whether they want the CF activities to continue or not, about 96 percent of the CF members said yes, while 4 percent were undecided. Those who wanted CF activities to continue said that before the CF started, the forest was degraded and they were not involved in forest management. They were happy to see the forest growing well and glad of the opportunity to participate fully in natural resource management and utilisation. Those who were undecided said that they were not involved in forest management and utilisation because they earned their income working outside of the community.

Respondents in the survey reported no negative impacts of CBNRM. To the contrary, about 79 percent of the CF members thought that the forest quality had improved while 21 percent said that the forest quality was stable. Field observations found that the forest was in good shape. The government representative working in the Siem Reap Forestry Cantonment confirmed that the forest was in much better condition than when it was given to the community.

### **3. Conclusions and Recommendations**

#### **3.1 Conclusion for CP Popel**

Visitors have to pay an entry fee to visit CPA Popel and other communities in Khnang Phnom commune because they lie within the Kulen

National Park, which has been leased to a private firm. This firm is headed by a Siem Reap Member of Parliament. The income from entrance fees is not shared with local communities, but goes to the firm's operating profit after maintenance and operations expenses.

The research indicates that CPA Popel was established by the Siem Reap Provincial Department of Environment in collaboration with the Siem Reap Forestry Cantonment. Additional technical and financial support came from the FAO. Community awareness and participation during the establishment of the CPA was very limited. Consequently, the operations management capacity of CPA Popel is "Less Effective". The management of CPA Popel could have been more effective had adequate legal instruments for its establishment and operation been in place.

Analysis of socioeconomic status revealed that most of the HH heads in CPA Popel cannot read or write. The average HH size is 5 persons. On average, houses are generally small and in poor condition (prone to leaking when it rains). None of the houses have a toilet on the premises. Kerosene lamps are the most common form of lighting. None of the HHs have a land title. The main crop is rice, and farming systems are highly traditional, swidden, and rainfed, with average yield of less than one tonne per hectare. About 90 percent of CPA families are food insecure (they lack food for at least one month every year). At the time of the assessment, the community had been targeted to receive food aid from the World Food Programme.

Agriculture and the collection and sale of NTFPs are the main sources of income for CPA members. Income from NTFPs would be higher if the monetary values of wood, wild foods and medicinal plants consumed were calculated and included as income. On the expenses side, rice and healthcare are the major outlays for CPA members, and agriculture and education are their lowest costs.

Overall, CPA HHs received low benefits from their participation in the CBNRM process. Although the CPA had no impact on the majority of CPA members, 15 percent reported negative benefits

such as tighter restrictions on access to resources. On the perception of the CPA's impact on their forest, 60 percent thought that the forest quality is now either stable or has improved, while about 40 percent felt that the forest quality has declined. There was consensus that the forest in the CPA deserves better protection.

### 3.2 Conclusion for CF Thbaeng Lech

CF Thbaeng Lech was established as a result of both internal and external factors, the latter being public policy and government reform in the forestry sector. Development partners supported the reform processes, adequate legal frameworks were in place, and there was strong commitment from national and subnational agencies to support the establishment and operations of CF. The people of Thbaeng Lech and the local authorities wanted to establish CF so that they could manage and use forest resources in a sustainable manner. The management and operational capacity of the CF committee is "Highly Effective" in delivering the services stipulated in the CF statute and agreement.

Most HH heads can read and write, and average HH size is 5 persons. The houses along the main road are generally big and the houses far from the main road are generally small. The number of big houses is increasing, and there is a notable change in the construction materials used – from thatch and wood to durable materials such as zinc, cement and bricks. Another new trend fast catching on is having toilet facilities within the house premises. Kerosene lamps remain the most common form of lighting, but battery and biogas are becoming increasingly used as alternatives. Regarding land tenure security, about 43 percent of CF HHs have formal land certificates. Wet season rice is the main crop, with an average yield of 1.5 tonnes per ha, although some families using modern rice farming practices achieve an average yield of 3 tonnes per ha.

Off-farm activities and agriculture are the main sources of income for CF members. Rice and housing are the two largest expenses for households, and agriculture and traditional ceremonies are the smallest.

As for actual benefits from the CF process, around 58 percent of respondents received high to very high benefits, 25 percent gained neutral benefits, and 17 percent reported low to very low benefits. About 96 percent said that they wanted CF to continue in their area, and there were no reports of negative impacts from the CF process. On the perception of the impact of CF on the forest, about 79 percent of the members thought that the forest quality had improved while 21 percent said that it had remained stable. The government official working in the forestry cantonment confirmed that the forest is in much better shape now than when it was given to the CF group.

Although the NTFP contribution (11 percent) to CPA Popel HHs' income was higher than that of CF Thbaeng Lech HHs (4 percent), the level of satisfaction was opposite to that expected. The CPA members were not happy with their NTFP income, whereas the CF members were very pleased with their much smaller amount. The reason for these different attitudes lies in each community's situation before they participated in a system to manage the forest. Previously in the CPA, local people could harvest NTFPs wherever and whenever they chose, resulting in an ever-higher contribution to their income than the current 11 percent. However, with the establishment of the CPA rules and regulations, their freedom to use the forests and NTFPs has declined and with it the amount of the contribution. On the other hand, the CF members' previous NTFP income was much smaller because the forest had been severely degraded. Therefore, the current 4 percent level is a bonus to them. In addition, they feel happy to see the forest growing back and take pride in caring for it.

### 3.3 Recommendations for CPA Popel

In order to improve the operations management effectiveness of CPA Popel, the management committee and other stakeholders should implement the following measures:

- Raise awareness of CPA members about the CPA process, their roles and responsibilities and the advantages of joining the CPA. All members should understand and respect the internal rules and regulations. They should



make an effort to raise outsiders' awareness of and respect for their rules and regulations as well. In order to achieve this, the community should seek technical and financial support from NGOs devoted to forest-related environmental matters rather than simply waiting for them to come to the community.

- Identify available resources in the CPA (such as the already logged trees left by illegal loggers, or other dead wood) and take necessary action, such as getting permission from the national park director to transport and sell the timber to raise capital so that the CPA can support its members.
- Integrate the needs of the CPA in the annual commune development plan, which is devised and carried out with community participation.
- Improve the CPA's financial management capacity so that it is able to exercise transparency in managing the CPA fund.

In addition, the government and other stakeholders should look into issues regarding land ownership, and land use and planning in the CPA. As the CPA is located in the upper part of the Siem Reap watershed, current land use planning practices should be reviewed as soon as possible to reduce the impacts on natural resources and to reverse the deterioration of the environment. Proper environmental impact analysis should be conducted to find out the overall effect of slash-and-burn farming, and good agricultural practices should be introduced. Improved upland rice production, for instance, would increase the general income of CPA HHs and ultimately raise their standard of living.

High healthcare expenses can quickly drain HH resources, driving families into hardship. Improving community awareness about the importance of hygiene and sanitation, and making healthcare information and services accessible, would help to ameliorate this situation.

To increase the benefits derived from their participation in the CPA, members need to understand their own roles in the CPA statute and in reinforcing the community's internal regulations. For example, they should not allow non-CPA members to use the resources in the

CPA. And given the perception of a relatively high proportion (40 percent) of the interviewees that the forest area is decreasing, the CPA committee should assess the actual extent of the forest to see whether better protection is required. Then, based on the assessment results, all CPA members should participate in planning and implementing key actions to improve the situation.

For residents of CPA Popel and other communities in Khnang Phnom commune, access to public and private services is either difficult or expensive compared with other communities in Siem Reap province. This is mainly because of the area's remoteness and the fee charged to non-residents and visitors/tourists to enter the national park. To improve local livelihoods and well-being, the government should consider engaging the land concessionaire and local communities in activities that ensure the sustainable use of natural resources and protect critical ecological features such as forests, wild life, surface water and ground water. That would help to build a resilient local watershed, which is critical to sustain local livelihoods and wellbeing, as well as to preserve the area's natural beauty and the regular long-term flow of the local waterfall attraction. In return for their stewardship of the upper watershed, the government could reward them on a regular basis with a share of the national park entrance fees.

To improve CPA members' understanding of their roles and responsibilities, the government should simplify the language used in the CPA statute. The section that describes the extraction and utilisation of natural resources in the CPA is particularly difficult to understand. For example, Article 30 of CPA Popel states, "The collection of natural resources following the technical standard is allowed"; and Article 31 reads, "The extraction of natural resources must follow the technical standard of the Protected Area etc." But what kind of technical standard? Moreover, if a technical standard at CPA level exists, why are the CPA members not aware of it? This raises further questions of how and why the community members do not understand the statute that they themselves prepared. Therefore, the government, particularly the MOE, should simplify the language used in the CPA statute and raise CPA

communities' awareness about their roles and responsibilities and the benefits of participating in CPA activities. The government should also empower communities and local authorities to make decisions and take stronger ownership of the CPA process, rather than just report to or accept the decisions made by the PA director as described in various articles of the statute. A strong sense of ownership and the full and meaningful participation of community members in decision-making and in implementing stewardship activities will eventually make the management and operation of CPAs more effective.

In terms of the CPA legal framework, Article 25 of the Protected Areas Law (RGC 2008) states: "Guidelines on the procedures and process of establishment of the community protected area shall be determined by Prakas of the Ministry of Environment." As of March 2014, this important document was still in draft form. The finalisation of the Guidelines and their implementation through the *Prakas* will make the establishment and operation of CPAs easier and more effective.

Article 40 of the Protected Areas Law (RGC 2008) reads, "Setting forest fire in the protected areas is prohibited." Thus, local communities should be helped to move away from swidden (shifting) agriculture. Payments for Ecosystem Services (PES), which compensates individual land-use change, is one such approach to achieving that objective. Under such a scheme, farmers in the CPA would be rewarded for using some of their current swidden land for forest conservation and replanting trees. This will depend in part on the government's policy and action plan to implement the PES scheme; however, CPA Popel should be considered for inclusion in any future pilot PES scheme.

### 3.4 Recommendations for CF Thbaeng Lech

The study confirmed that the management and operations capacity of CF Thbaeng Lech has been highly effective in delivering livelihood improvements and in implementing natural resource conservation activities. It recommends, therefore, that CF Thbaeng Lech continue its efforts and activities to further improve its management.

The community seems to have the necessary elements to set up community-based ecotourism in the area. Those elements include: (i) community cohesion, which is a very good social asset; (ii) good connectivity and infrastructure; (iii) a good regenerated forest; and (iv) spring water. If community-based ecotourism is considered, the community should look for external support to conduct a proper feasibility study.

In the areas of land tenure security and land use, the study recommends that the government and other stakeholders expedite the issuance of land titles; currently, only 43 percent of CF Thbaeng Lech households have secure land tenure. As regards income, community members could increase their HH farm income by adopting and investing in improved farming techniques (seeds, fertilisers and other inputs) to increase rice productivity. In turn, the higher rice yields would contribute to an overall increase in HH incomes, enhancing their livelihoods and reducing their dependency on forest resources.

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## List of Abbreviations

ADB	Asian Development Bank
AVSF	Agronomes et Vétérinaires Sans Frontières
CBNRM	Community-based Natural Resource Management
CF	Community Forestry
CFi	Community Fisheries
CPA	Community Protected Area
DANIDA	Danish International Development Agency
FA	Forestry Administration
FAO	Food And Agriculture Organisation
ha	Hectare
HH	Household
NCDD	National Committee for Sub-National Democratic Development
NGO	Non-governmental Organisation
NRM	Natural Resource Management
MAFF	Ministry of Agriculture, Forestry and Fisheries
MOE	Ministry of Environment
NCDD	National Committee for Sub-National Democratic Development
NTFP	Non-timber Forest Product
PA	Protected Area
PES	Payment for Ecosystem Services
RGC	Royal Government of Cambodia
USD	US Dollar

### About DRF

The Development Research Forum (DRF) of Cambodia was established following the All-Partners Forum organised by the International Development Research Centre (IDRC) in September 2007.

The DRF vision is of a high capacity, professional and vibrant Cambodian development research community. Its goal is to support and strengthen the capacity of the Cambodian development research community.

The DRF partnership involves the Cambodia Development Resource Institute (CDRI), Cambodian Economic Association (CEA), Learning Institute (LI), National Institute of Public Health (NIPH), Royal University of Agriculture (RUA), Royal University of Phnom Penh (RUPP), Supreme National Economic Council (SNEC) and the International Development Research Centre (IDRC).

In DRF Phase II 2012-15, with financial support from IDRC, the partners intend to work together to build research culture and capacity and to share research knowledge through workshops, policy roundtables and symposiums as well as training and online discussion ([www.drfcambodia.net](http://www.drfcambodia.net)) on six research themes: growth and inclusiveness, governance of natural resources, social policy – education, social policy – health, agricultural development, and Cambodia and its region.

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**CDRI – Cambodia's leading independent development policy research institute**

☎ 56 Street 315, Tuol Kork ☒ PO Box 622, Phnom Penh, Cambodia

☎ (855-23) 881384/881701/881916/883603 ☎ (855-23) 880734

Email: [cdri@cdri.org.kh](mailto:cdri@cdri.org.kh), Website: [www.cdri.org.kh](http://www.cdri.org.kh)