REDD+ Demonstration Activities in Cambodia: The Case of the Oddar Meanchey Community Forestry REDD+ Project

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Acknowledgements

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List of Acronyms

ANR    Assisted Natural Regeneration
CBM   Community-based Monitoring
CCBA  Climate, Community and Biodiversity Alliance
CF    Community Forestry
CFI   Community Forestry International
CFMC  Community Forest Management Committee
CFN   Community Forestry Network
COP   Conference of the Parties
ELC   Economic Land Concession
FA    Forestry Administration
FAO   Food and Agriculture Organization
GHG   Greenhouse Gas
HCV   High Conservation Value
IPCC  Intergovernmental Panel on Climate Change
LULC  Land Use Land Cover
MAFF  Ministry of Agriculture, Fishery and Forestry
MOE   Ministry of Environment
MRV   Monitoring Verification and Reporting
NER   Net Emissions Reductions
NGO   Non-governmental Organization
NTFP  Non-timber Forest Product
PDD   Project Design Document
PLUP  Participatory Land Use Planning
PRA   Participatory Rural Appraisal
REDD+ Reducing Emission from Deforestation and Forest Degradation
RGC   Royal Government of Cambodia
SMS   Short Message Service
TGC   Terra Global Capital
TgC   Teragrams of Carbon (1 TgC = 1 MtC)
TWG FR Technical Working Group on Forestry Reform
UNDP  United Nations Development Programme
UNFCCC United Nations Framework Convention on Climate Change
VCS   Verified Carbon Standard
1. Introduction

Reducing Emission from Deforestation and Forest Degradation (REDD+) is a program that aims to create a financial incentive for developing countries to reduce emissions from deforestation and forest degradation (UN-REDD, 2010). Even though REDD+ is still under discussion within the United Nations Framework Convention on Climate Change (UNFCCC), many REDD+ demonstration projects are being implemented across the tropics (Yeang, 2010). In Cambodia, a first REDD+ demonstration project, the Oddar Meanchey Community Forestry REDD+ project (OM CF REDD+), started in 2008. This case study provides an overview of the progress and lesson learned from the OM CF REDD+ project. It looks into some important components of REDD+ such as strategies to reduce deforestation; monitoring, verification and reporting (MRV) systems; project financing; payment distribution; and governance aspects in the project.

2. Forest Management and Utilisation in the Project Area

2.1. Forest Resources

Oddar Meanchey province shares a 224-kilometer border with Thailand, and within Cambodia it borders Siem Reap, Banteay Meanchey and Preah Vihear provinces. This province was one of the remaining strongholds of the post-1979 Khmer Rouge (KR) guerrilla force and was not formally established until 1999. The province’s 6,631.72 square kilometers are divided into five districts: Samraong, Banteay Ampil, Chong Kal, Anlong Veng, and Trapeang Prasat. The total forest cover of the province is approximately 68.8% of the provincial area or 457,131 ha (Ty et al., 2011). Four main types of forest can be found in Oddar Meanchey province, namely evergreen, semi-evergreen, deciduous, and open forest.

According to the project’s biodiversity assessment study by Vittoria et al. (2011), in the project areas, there are some high conservation values (HCVs) in these forests, namely leopard, jungle cat, pilated gibbon, dhole, elephant, banteng, gaur, and sun bear. Many of these are on the IUCN red list due to their dwindling numbers. Wetlands and areas with older growth forest possess particularly high biodiversity. Important indicator bird species that are critically endangered include the giant ibis (Thaumatibis gigantea), white Shouldered ibis (Pseudodibis davisonsi), bengal florican (Eupodotis bengalensis), and other threatened species such as sarus crane (Grus antigone) and greater and lesser adjutants (Leptoptilos dubius) (Vittoria, et al., 2011). Habitat loss and illegal hunting are the major threats to these species in the project areas.

Figure 1 Male Banteng photographed by a camera trap in Sorng Rokavorn (Vittoria, et al., 2011)
Local communities in the project area depend economically on timber, fuelwood and non-timber forest products (NTFPs). They harvest timber for household use such as for building houses, fencing, and making stables for livestock and storage rooms for agricultural equipment. As in many parts of the country, the local communities in Oddar Meanchey province rely heavily on fuelwood as their energy source, especially for daily cooking for their households. They also burn wood to produce smoke to protect livestock from mosquitoes and other insects. The NTFPs in the community forest areas include bamboo canes and shoots, thatch grass, insects/termites, honey, mushrooms, fodder, fish, wild fruits, rattan canes and shoots, resin, *prich* leaves (a wild vegetable), wild potatoes, and wildlife. In addition, villagers collect plants to be used as traditional medicine.

**Table 1 Forest types in the OM CF REDD+ project area**

<table>
<thead>
<tr>
<th>No.</th>
<th>Community Forest Group Name</th>
<th>CF Size (ha)</th>
<th>Evergreen Forest</th>
<th>Mix/Deciduous Forest</th>
<th>Non-Forest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Andong Bor</td>
<td>6,114</td>
<td>0%</td>
<td>97%</td>
<td>3%</td>
</tr>
<tr>
<td>2</td>
<td>Chhouk Meas</td>
<td>383</td>
<td>79%</td>
<td>19%</td>
<td>1%</td>
</tr>
<tr>
<td>3</td>
<td>Dung Beng</td>
<td>1,843</td>
<td>40%</td>
<td>53%</td>
<td>7%</td>
</tr>
<tr>
<td>4</td>
<td>Ou Yeay Kaov</td>
<td>960</td>
<td>91%</td>
<td>0%</td>
<td>9%</td>
</tr>
<tr>
<td>5</td>
<td>Phaav</td>
<td>2,925</td>
<td>95%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>6</td>
<td>Prey Srorng</td>
<td>6,344</td>
<td>72%</td>
<td>19%</td>
<td>9%</td>
</tr>
<tr>
<td>7</td>
<td>Prey Srors</td>
<td>1,604</td>
<td>94%</td>
<td>0%</td>
<td>6%</td>
</tr>
<tr>
<td>8</td>
<td>Ratanak Ruka</td>
<td>12,872</td>
<td>4%</td>
<td>90%</td>
<td>5%</td>
</tr>
<tr>
<td>9</td>
<td>Rolus Thom</td>
<td>2,966</td>
<td>62%</td>
<td>3%</td>
<td>35%</td>
</tr>
<tr>
<td>10</td>
<td>Romdoul Veasna</td>
<td>6,016</td>
<td>59%</td>
<td>1%</td>
<td>40%</td>
</tr>
<tr>
<td>11</td>
<td>Samaky</td>
<td>1,079</td>
<td>92%</td>
<td>6%</td>
<td>1%</td>
</tr>
<tr>
<td>12</td>
<td>Sangkrous Preychheu</td>
<td>4,151</td>
<td>89%</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>13</td>
<td>Sorng Rokavorn</td>
<td>18,261</td>
<td>9%</td>
<td>85%</td>
<td>6%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>64,318</td>
<td>36%</td>
<td>53%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Source: (TGC, 2011a)

**2.2. Forest Policy and Tenure**

There are several national policies that influence the governance of forests in Cambodia. The national policies that guide forest management include the Constitution, Cambodian Millennium Development Goals (CDMG), the Rectangular Strategy, the National Strategic Development Plan, as well as more sector-specific laws and policies such as the Forestry Law (2002), Community Forestry Sub-Decree (2003), the National Forest Programme (2010 – 2029), the Law on Environmental Protection and Natural Resource Management (1996), the Law on Protected Areas (2008), and the Land Law (2001).

The CMDGs emphasize the importance of improving forestry and natural resource management in the country. The government has expressed its commitment to increase total forest cover to 60% (from the current 57%) of land area by combating deforestation and forestland conversion (RGC, 2010). To achieve these goals, the Rectangular Strategy (RS), a national economic policy agenda, was formulated in July 2004. The RS aims to ensure sustainable forest management, protect biodiversity and promote community forestry programs in the country.

The National Strategic Development Plan (2009-2013) supports the sustainable use of all natural resources in the country. It outlines the importance of conserving Cambodia’s unique natural heritage and biodiversity, along with enhancing environmental sustainability, sustainable economic growth, poverty reduction and improvements in the lives of rural communities.
In terms of sector-specific laws, the Forestry Law, promulgated on 30 July 2002, is the most important overarching document. It defines the management framework, harvesting, use, development, conservation, and protection of forests in Cambodia. It aims to ensure sustainable forest management and customary user rights of forest resources for indigenous and local communities. Promulgated under this law, the 2003 Sub-Decree on Community Forestry Management aims to empower local communities to manage and use forest resources to preserve their culture and traditions as well as improve their livelihoods. In addition, the Sub-Decree also intends to ensure forest user rights for local communities and offer an effective means for them to participate in reforestation, rehabilitation and conservation of natural resources, including forests and wildlife. It aims to support not only the Cambodian government’s policies of poverty reduction but also decentralization through community based forest management.

Cambodian forest estates are not yet clearly demarcated (FAO, 2005). According to the Forestry Law (2002), all forests, referred to as the Permanent Forest Estate, belong to the state. Under this law, the Permanent Forest Estate is divided into three categories: 1) Permanent Forest Reserves, 2) Private Forests, and 3) Protected Areas (Figure 2).

Permanent Forest Reserves are state public property and fall under the jurisdiction of the Forestry Administration (FA) of the Ministry of Agriculture, Forestry and Fisheries (MAFF). According to the Forestry Law, the Permanent Forest Estate is defined as all forested land within the Kingdom of Cambodia. Generally, all categories of forests fall within the definition of the Permanent Forest Reserves including forests that occur on private lands, flooded forests, wetland forests and mangrove forests. However, while all these forests are under the jurisdiction of the FA, wetland and mangrove forests are under the jurisdiction of the Department of Fisheries of the MAFF. Permanent Forest Reserves consist of three sub-categories: Production Forests, Protection Forests and Conversion Forests. Production Forests are forests that are managed primarily for the sustainable production of timber and non-timber forest products. In these forests, protection is only a secondary objective. As shown in Figure 2, Production Forests include Forest Concessions and Community Forests. Areas under Production Forests include those forests where harvesting is permitted (e.g. annual bidding coupes for domestic wood supply), degraded forests, forests to be rehabilitated, and forests reserved for regeneration or plantation.

According to the Forestry Law, the Royal Government of Cambodia may grant an area of production forest, not under use, to a forest concession through public bidding consistent with the National Forest Management Plan and after consultation with concerned ministries, local authorities and communities. Community forests are forests owned by the state that have been allocated to communities under a 15-year agreement. These forests are managed by the local communities with the technical support from the FA and NGOs. Several international and local NGOs also play a key role in building the capacity of local communities to manage these forests by providing financial and technical support (Yeang, 2010). The primary goal of community forests is to protect and rehabilitate forests and to enhance the sustainable use of forest resources by local communities.

In addition to the Forestry Law, the Law on Environmental Protection and Natural Resource Management was approved in 1996. It aims to ensure the sustainable conservation, development, management, and use of the country’s natural resources. The law also complies with Article 59 of the National Constitution concerning the protection of human health, the environment, and natural resources.

The Law on Protected Areas was promulgated in 2008. The objectives of this law are to manage and effectively implement the conservation of biological resources and the sustainable use of natural resources in the Protected Areas. In addition, it determines the responsibilities and participation of local communities, indigenous ethnic minorities, and
The 2001 Land Law recognizes the rights of indigenous ethnic minority groups to their traditional residential and agricultural lands. In addition, the Policy for Indigenous Peoples’ Development was adopted in April 2009, recognizing the rights of the indigenous peoples to their cultures, land, and natural resources. The lands can be registered under communal title though the registration of these lands is still in the pilot phase (Yeang, 2010).

The National Forest Programme aims not only to achieve sustainable forest management but also to alleviate poverty in the country. Specifically, it identifies objectives and goals in developing and managing forests to improve livelihoods, environmental services and overall economic development. More importantly, it aims to ensure that the management and exploitation of forests generates benefits for government entities, local communities, the private sector, civil society and individuals.

Even though there are many existing laws and policies that support tenure rights of local communities in Cambodia, implementing and enforcing these laws and policies is still limited due to understaffing and funding constraints of the government agencies as well as unsustainable land use policy, especially Economic Land Concession schemes.

![Figure 2 Forest Tenure Regimes in Cambodia (Yeang, 2010)]
2.3. Institutions for Forest Management

2.3.1. Forestry Administration (FA)

The Forestry Administration (FA) was established in 2003 (previously known as the Department of Forestry and Wildlife). The FA is a government authority under the MAFF that works to manage forest resources according to the Forestry Law and the National Forestry Programme. The FA has a vertical organizational structure for the whole country, which is divided into central, inspectorate, cantonment, division, and triage administration levels. The three FA divisions in Oddar Meanchey, namely Anlong Veng, Samraong and Banteay Ampil, used to be under the jurisdiction of the Siem Reap FA cantonment. In June 2010, the Oddar Meanchey FA cantonment was officially established to control the three FA divisions and was separated from the Siem Reap FA cantonment. The Oddar Meanchey FA cantonment is comprised of three FA divisions and five triages, and there are currently 35 local FA officers stationed in the province. On average each officer is responsible for managing nearly 13,000 hectares of forest land. With these limited human as well as financial resources, the FA faces many challenges in fulfilling its obligation to protect forests which are under threat.

![Organizational Chart of the FA in OM](image)

2.3.2. Community Forestry Network (CFN)

The Community Forestry Network (CFN) in Oddar Meanchey province was informally established in 2008 to represent all 13 CFs in the province. The organizational structure of the CFN (Figure 4) includes the chief of the network, deputy, secretary, finance officer and its members. The CFN chief is elected every five years by its members, as stated in the CFN Regulations. The CFN Regulations were developed collaboratively with input from each of the 13 CFMCs. The regulations outline the roles and responsibility of CFN members, and provide guidelines on the activities of the CFN. Over recent years, the CFN have debated requesting for official recognition from the provincial governor of Oddar Meanchey province. There has been some disagreements amongst CFN members regarding whether or not the CFN should register as a formal institution with the government, due to the perceived
benefits and risks of this action. Registering could provide the CFN with more authority in conducting enforcement activities, and could allow the CFN to receive greater support from relevant government agencies in supporting the CFs. On the other hand, CFN members are concerned that registering could restrict the CFNs independence, and would increase the level of government control and bureaucracy this body would have to follow. Some members also think that it is sufficient that each of thirteen CFMCs are already registered as formal entities. For these reasons, the CFN have so far decided not to register the CFN as a formal institution.

The CFN plays an important role in facilitating and addressing CF issues, particularly forest land conflicts and internal management conflicts in the CF management committees. The CFN chief occasionally invites all the members for a meeting in Samraong to discuss issues and agree on a strategic workplan to address these issues. For instance, in April 2012 the CFN chief led efforts to put together a petition from the communities to the Minister of Agriculture, Fishery and Forestry (MAFF) to address the military occupation of Andong Bor CF and Dung Beng CF. The petition contained thumbprints from 2,000 community members and requested the government to find a solution. The CFN works to raise awareness related to the Forestry Law, Land Law and other relevant regulations. The CFN chief also visits each CF at least two times per month to assist CF leaders to compile reports to the FA on illegal settlements and logging. During these visits, the CFN chief also joins patrols in these CFs to verify the reports of the CF members. The visits will be more often to the CFs with a lot of issues to address, particularly internal conflicts and illegal forest activities.
2.3.4. Community Forest Management Committee (CFMC)
Each CF is led by a Community Forestry Management Committee (CFMC), which is a key local institution responsible for the management of each CF in the OM CF REDD+ project. The members of the CFMC are selected by the CF members through an election which is facilitated by local authorities such as chiefs of villages and communes, including a representative of the FA from FA cantonment. The candidate who has gained the most votes is nominated as the CFMC leader. These elections take place every five years. Generally, the structure of the CFMC (Figure 5) is comprised of a chief, secretary, deputy and its members who are responsible for bookkeeping, information dissemination, tree planting and patrolling. For CF sites that are comprised of more than 1 village, CF Regulations state that a sub-CFMC must be established in each separate village. The purpose of sub-CFMCs is to greater ensure the decentralization of forest management, by allowing local villagers greater opportunities to have plan and contribute to CF management activities. Sub-CFMCs have the same management structure as CFMCs, and follow the same guidelines outlined in the CF Regulations. Generally, one or more representatives from the sub-CFMC are members of the CFMC, which allow the concerns and interests of each separate village to be channeled to the CFMC.

The CFMC and sub-CFMC is responsible for the overall management of the community forests including: adopting community forestry regulations; preparing the community forestry management plan; coordinating with FA and local authorities; resolving conflicts in the CF areas; reporting to local FA officials on illegal forest activities; and protecting the community forest. For the OM CF REDD+ project, all the 13 CFMC and CF members have been involved in consultation meetings on the REDD+ project and committed to actively engage in the project by defining their role and responsibilities under the OM CF REDD+ project.

Table 2. Number of CFMC members in each CF

<table>
<thead>
<tr>
<th>CF Name</th>
<th>Number of CFMC members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angdong Bor</td>
<td>7</td>
</tr>
<tr>
<td>Chhouk Meas</td>
<td>7</td>
</tr>
<tr>
<td>Dung Beng</td>
<td>7</td>
</tr>
<tr>
<td>Ou Yeay Kaov</td>
<td>7</td>
</tr>
<tr>
<td>Phaav</td>
<td>9</td>
</tr>
<tr>
<td>Prey Srorng</td>
<td>7</td>
</tr>
<tr>
<td>Prey Srors</td>
<td>7</td>
</tr>
<tr>
<td>Ratanak Ruka</td>
<td>7</td>
</tr>
<tr>
<td>Rolus Thom</td>
<td>11</td>
</tr>
<tr>
<td>Romdoul Veasna</td>
<td>7</td>
</tr>
<tr>
<td>Samaky</td>
<td>7</td>
</tr>
<tr>
<td>Sangkrous Preychheu</td>
<td>5</td>
</tr>
<tr>
<td>Sorng Rokavorn</td>
<td>9</td>
</tr>
</tbody>
</table>
2.3.6. The Monks Community Forest (MCF)

The Monks Community Forest (MCF) or Sorng Rokavorn Community Forestry was initiated in 2001. It is one of the 13 community forestry groups in the project which is located in two districts (Chong Kal and Anlong Veng) and five communes (Koun Kriel, Samraong, Pongro, Trapeang Tav, and Lumtong) and is under the territory of Samraong and Anlong Veng divisions of the Oddar Meanchey Forestry Administration (FA) Cantonment. The MCF is led by a visionary Buddhist monk, Venerable Bun Saluth, the head of Samraong Pagoda, which makes this CF unique in the province. The MCF is very active in forest protection activities and coordinates closely with local FA officials, authorities and local communities. The MCF has its own funding to conduct forest protection activities since the Buddhist monks are able to do fundraising in the province more easily (B. Saluth, personal communication July 30, 2012). The fund comes from donations from Buddhist followers who visit the pagoda for religious ceremonies. In addition, the MCF also gets support from the nun association in the United Kingdom and in 2010, Bun Saluth was awarded the UNDP’s Equator Initiative award of US$5,000 for his role in the management of the Sorng Rokavorn Community Forest.

3. Deforestation and Forest Degradation in the Project Area

3.1. Rates of Deforestation and Degradation

Cambodia lost its forests at an annual rate of 1.3% over the 2000 – 2010 period (FAO, 2010). In Oddar Meanchey province, the average rate of deforestation has been about 2.1% annually (Poffenberger, 2009).

<table>
<thead>
<tr>
<th>Forest Type &amp; Condition</th>
<th>Forest Cover in 2002 (ha)</th>
<th>Forest Cover in 2006 (ha)</th>
<th>% Change</th>
<th>% Annual Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evergreen Forest</td>
<td>166,935</td>
<td>149,119</td>
<td>-11%</td>
<td>-2.8%</td>
</tr>
<tr>
<td>Semi-Evergreen Forest</td>
<td>71,319</td>
<td>55,138</td>
<td>-23%</td>
<td>-5.8%</td>
</tr>
<tr>
<td>Deciduous Forest</td>
<td>251,728</td>
<td>240,824</td>
<td>-4%</td>
<td>-1.0%</td>
</tr>
<tr>
<td>Open Forest</td>
<td>5,743</td>
<td>12,050</td>
<td>110%</td>
<td>27.0%</td>
</tr>
<tr>
<td>Total Forest</td>
<td>495,725</td>
<td>457,131</td>
<td>-8%</td>
<td>-2.1%</td>
</tr>
<tr>
<td>Barren Land</td>
<td>167,440</td>
<td>206,034</td>
<td>23%</td>
<td>5.8%</td>
</tr>
<tr>
<td>Total Land Area</td>
<td>663,165</td>
<td>663,165</td>
<td>0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Source: Forestry Administration and GRAS A/S at the University of Copenhagen
3.2. Underlying and Proximate Causes of Deforestation and Forest Degradation

According to Geist and Lambin (2001), deforestation in the tropics can be classified into two types of causes: underlying and proximate. The underlying causes are the fundamental forces that underpin the more obvious or proximate causes of tropical deforestation. They can be seen as a complex mix of social, political, economic, technological, and cultural variables, while proximate causes are human activities related to land use change (such as agricultural expansion, wood extraction and infrastructure extension) that directly affect the environment (Geist & Lambin, 2001). Like in many parts of the country, high demands for timber, agricultural expansion and settlements are the driving force of deforestation and forest degradation in Oddar Meanchey province. The underlying causes are global commodity markets and investment (international level) and economic land concessions (national level), while the proximate causes are forest land encroachment by military and migrants, agricultural expansion, illegal logging, forest fires and fuel-wood extraction (local level) (Poffenberger, 2009).

4. REDD Demonstration Activity Outline

4.1. Background

The Oddar Meanchey Community Forestry REDD+ Project (OM CF REDD+) involves thirteen community forestry sites located in Oddar Meanchey Province (Figure 7). The project aims to protect 64,318 ha of forest and thereby enhance sequestration of approximately 8.3 million metric tons of carbon dioxide over the next 30 years. The primary goal of this project is to successfully enhance storage and sequestration of carbon in the natural forests of Northwest Cambodia under the emerging REDD+ mechanism and to assess a climate-related payment mechanism for forest conservation. In addition, it also supports the implementation of the national community forestry program, by securing long-term tenure rights for forest-dependent communities, responding to rural livelihood needs, conserving biodiversity, and supporting hydrological regimes (Poffenberger et al., 2009).
The project was officially endorsed by the Prime Minister of Cambodia under Government Decision 699 on May 26, 2008. Due to the withdrawal of Community Forestry International (CFI) from Cambodia, the project was transferred to Pact in 2009 (Yeang, 2010). Pact is an international NGO that empowers local communities by promoting effective governance and responsible and transparent public and private sector institutions. In Cambodia, Pact focuses primarily on governance and natural resource management. Subsequent to the transfer from CFI, Pact has continued to develop and implement the project in collaboration with the FA and other partners (Bradley, 2011). The project partners include Terra Global Capital, local NGO Children’s Development Association (CDA), the Monks Community Forestry Association (MCF), as well as the local authorities in Oddar Meanchey province. CDA is a local NGO based in Oddar Meanchey province that has been implementing community forestry projects since 2002. The organization has also contributed to raising the awareness of local communities on community forestry, climate change, and REDD (Bradley, 2009).

4.2. Design Process
It took about twenty-four months, from early 2008 to 2009 to design the OM CF REDD+ project and submit the project design document (PDD) to the Climate, Community, and Biodiversity Alliance (CCBA) and the Verified Carbon Standard (VCS) program for certification (Poffenberger, et al., 2009). The development of this REDD+ project has been a complicated process which has required the involvement of a wide range of actors and many activities. The activities have included: developing the REDD+ methodology, measuring forest stocks; preparing the Project Documents (PDs) and submitting them to the CCBA and VCS; handling project negotiations and agreements; designing efficient project monitoring protocols; setting up carbon monitoring systems; organizing project validation; collecting data for verification; and launching marketing activities (Ibid.). The project management team is comprised of various actors from community forestry specialists from NGOs, government policymakers and foresters, donors, carbon brokers, remote sensing experts, carbon modellers, Buddhist monks, and forest-dependent communities (See Table 3).
### Table 3. Project Actors and Roles

<table>
<thead>
<tr>
<th>Actor</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Forestry International (CFI)</td>
<td>Project identification and design</td>
</tr>
<tr>
<td>Forestry Administration (FA)</td>
<td>Project proponent, carbon seller, lead agency representing the Royal Government of Cambodia</td>
</tr>
<tr>
<td>Pact</td>
<td>Implementing partner, coordination and implementation of project activities, MRV (biomass inventories and social assessments), capacity building</td>
</tr>
<tr>
<td>Terra Global Capital (TGC)</td>
<td>Carbon calculator, carbon broker, technical adviser, offset marketing</td>
</tr>
<tr>
<td>Technical Working Group on Forestry Reform (TWG FR)</td>
<td>Funding agency for project design and monitoring body, carbon revenue management body</td>
</tr>
<tr>
<td>Clinton Climate Initiative (CCI)</td>
<td>Funding agency for project certification</td>
</tr>
<tr>
<td>Children’s Development Association</td>
<td>CFMC training and field project management activities</td>
</tr>
<tr>
<td>Buddhist Monks of Samraong Pagoda</td>
<td>Organizers of monk’s conservation forest (Srong Rokavorn, 18,600 hectares)</td>
</tr>
<tr>
<td>Community Forestry Network (CFN)</td>
<td>Facilitate communication and coordination with 13 CFMCs, support forest enforcement activities</td>
</tr>
<tr>
<td>13 CFMCs from Oddar Meanchey Province</td>
<td>Local implementing organizations for forest patrolling, restoration, activity planning</td>
</tr>
<tr>
<td>SNR Denton</td>
<td>Legal Advisor on the Emission Reductions Purchase Agreement (ERPA) and other legal agreements</td>
</tr>
</tbody>
</table>

The project design team needed to collect a lot data on socioeconomic variables, biodiversity and carbon stocks in the project area in order to prepare the PDs to submit to the VCS and CCBA. For socioeconomic information, the participatory rural appraisals (PRA) and household surveys (HHS) were conducted in the 13 CFs. In total, 13 PRA meetings in the 13 CFs and 100 household surveys were conducted to generate socioeconomic baseline information for OM CF REDD+ project (Poffenberger, et al., 2009). To calculate carbon stocks in the project area, forest biomass inventories were conducted and 126 permanent plots inside the 13 CF sites were established and measured between 2008 and 2010. The measurement of the 50m x 50 m plots involved local communities, FA officials, and Buddhist monks. Finally, in order to satisfy the requirements of the CCBA, a biodiversity assessment of the project site was conducted in 2010 in collaboration with Birdlife International.

The OM CF REDD+ project design process has taken longer than the design team originally anticipated because extra time was needed to develop the methodology and collect additional data so the project could be validated by the certifying bodies. Furthermore, inadequate funding to cover initial design and implementation costs has also slowed project development. Learning from this experience indicates that a strong coalition of partners, government support, active community participation, sophisticated technical capacity, and adequate start-up financing may all be important components for successful REDD+ project design.

### 4.3. Project Overview

The OM CF REDD+ project was started in 2008 and the project documents (PD) were submitted to the VCS in 2008 (first version) and CCBA in 2009 for certification. In addition, revisions of those PDs have been on-going to ensure compliance with the two standards. In
August 2011, TÜV SÜD, a third party validator from Germany, arrived in Cambodia to conduct the dual validation of the project for both VCS and CCB standards. The validation process included a review of the PDs for VCS and CCBA as well as a field visit and forest plot measurement in the project areas. After the field visit, the validator issued a report for the project and identified 91 clarification requests (CR) and corrective action requests (CAR) to be addressed by the stakeholders in the project. All the CRs and CARs have been addressed and the project team is, at the time of writing (as of September 2012), awaiting the final validation report.

5. Assessment of Design Elements

5.1. Strategies to Reduce Emissions

A variety of different strategies and project activities have been developed to reduce emissions and address the drivers of deforestation and degradation in the OM CF REDD+ project. These strategies have been outlined in the Project Document (PD) (2011) and incorporated into the 30-year implementation work plan and budget. These strategies have been chosen based on consultations with local communities and authorities in Oddar Meanchey along with other relevant project stakeholders. The drivers of deforestation in this area occur at multiple levels and are carried out by a variety of actors, from local villagers to political and economic elites. Reducing deforestation will require comprehensive strategies which allow both local and national drivers to be mitigated by policy actions and partnerships between diverse institutions (Poffenberger, 2009). This section will outline the key strategies that have been devised to address the drivers of deforestation in Oddar Meanchey. Strategies have been categorised according to the different level of the drivers of deforestation they are intending to address, ranging from the international down to the local level, although some overlap exists between the level at which these drivers occur.

5.1.1. International Level

There are a number of economic and political factors at the international level which can have an impact on the rate of deforestation in Oddar Meanchey and influence the effectiveness of the REDD+ project. These include: commodity prices; investment capital; regional economic growth rates; and trans-boundary political and military conflicts (Poffenberger, 2009). These types of drivers of deforestation are extremely challenging to address at the project level. Project planning for the OM CF REDD+ project has focused primarily on controlling national and sub-national drivers.

5.1.2. National level

National-level drivers of deforestation and degradation are in some regards the most challenging to address, particularly from the perspective of the local communities and NGOs (Bradley 2009). This is because the decision-making often occurs in Phnom Penh which is geographically removed from the area of impact, and there is generally very little or no public consultation. The Oddar Meanchey project has shown however that national-level drivers of deforestation and degradation may be addressed.

5.1.2.1. Military

The military has a strong presence in Oddar Meanchey Province. In recent years, hundreds of soldiers and their families have been posted to the area to increase security along the border with Thailand. This increased military presence has been brought around by concerns that the border conflict with Thailand could reignite at some point in the future. The government has supported soldiers to settle in Oddar Meanchey and other border provinces by allocating land to soldiers’ families as an incentive. Soldiers’ generally receive low salaries and management within the institution tends to be weak; these factors have led many soldiers to become involved in illegal activities such as logging and land clearing as a way to earn additional income. Armed soldiers also often play a role in assisting with the transport
of illegal timber harvests for politicians and providing security for private economic land
concession companies (Poffenberger, 2009). More recently, military families have
established a number of settlement camps in some of the Community Forestry areas. Local
communities have taken the initiative to address these encroachment problems, and have
written letters and reports requesting support from the Forestry Administration and the
Ministry of Agriculture, Forestry and Fisheries (MAFF).

To address the risk of military encroachment in CF areas, the project seeks to strengthen
cooporative relationships between the local Forestry Administration (FA) staff, police and
military in order to create a unified group of stakeholders that can prevent further forest
encroachment and illegal logging. The strengthening of relationships between these
authorities will need to occur at all levels, however will be focussed primarily on the
provincial cantonment level of the FA and the provincial military authority, which is a
provincial military base called the Military Operation Zone under the command of a Colonel.
Improving the understanding and cooperation between these authorities will also require the
FA to facilitate cooperative action and engagement between local military personnel
stationed in Oddar Meanchey and the CFMCs, to effectively reduce environmental crimes
conducted by the military.

5.1.2.2. Government
Local government officials in Cambodia sometimes contribute to deforestation by engaging
in illegal land sales and forest clearing activities (Poffenberger, 2009). In some of the CF
areas, local government officials from various levels of government (commune, district,
provincial) are reported to be involved in selling land within CF areas or endorsing land
encroachments into these areas. This results in deforestation as the forest land is often
converted to agriculture, plantations or settlements. Due to the weakness of the judicial
system and corruption, and the reluctance of community groups to challenge the authority of
these officials, addressing this driver of deforestation requires measures to be taken at the
national level (Poffenberger 2009). Holding transparent and public meetings between
national government planners and local government officials can help to communicate the
importance of protecting the project area and make clear the government’s recognition of the
CF areas and the REDD+ project. Other forest protection activities, such as support for
CFMCs to actively patrol forest boundaries and reinforce their claim to project areas, will
assist local communities in mitigating against this driver.

5.1.2.3. Economic Land Concessions (ELCs)
An important driver of deforestation in Oddar Meanchey has been the allocation of forest
land to private sector firms in the form of economic land concessions. Reinforcing land-
tenure status through community forestry agreements ensures the CFMCs have management
rights and responsibilities over the CF areas. These legal agreements enhance the
community’s ability to protect and conserve forest areas from ELCs (TGC 2011). The MAFF
can refer to maps and geospatial data available to them showing the location of rural land
ownership, and can use this information to avoid these areas when assigning ELCs. Carbon
credits will be used to help strengthen community forestry boundaries by establishing
boundary poles and signs.

5.1.3. Sub-national level

5.1.3.1 Land speculation
Another important driver of deforestation in Oddar Meanchey has been the clearing of
forests to make claims over land which is later resold as land prices increase. In many cases,
these land sales are illegal as the land sold to private buyers is inside the CF area, even
though the community has received management and tenure rights over this land. These
land sales are also illegal because they often occur without the legal approval of the necessary
authorities, such as the Commune Councils and the Provincial Department of Land
Management. Identifying the middlemen who are financing these purchases of forest land and reporting these incidences to the relevant authorities can help to address this driver. This will involve meetings and workshops at the local level with government officials and village leaders to help control these land sales. Regular monitoring and patrolling of forest areas and proper boundary demarcation and signage around the CF area will also help to decrease this driver (TGC, 2011). Participatory land use planning (PLUP) will also assist in clarifying community tenure over forest areas in the province.

5.1.3.2 Migrants
In the late 1990s, after 25 years of political insecurity, a large proportion of migrants started moving to Oddar Meanchey province, which at the time was sparsely populated and heavily forested. This led to a population growth rate of 12% per year over this decade, with between 8,000 and 9,000 migrants moving into this province each year (Poffenberger, 2009). The demand of these migrants for agricultural land played a key role in the 2% annual deforestation rate in the province over this period. An important part of the strategy to control the encroachment of migrants into CF areas is educating them on the community protected forest areas and including them in the CFMCs. The project team will facilitate regular communication between the project communities and migrant communities in the project area, to develop natural resource management plans, as well as guidelines and regulations relating to land-use (TGC, 2011). Carbon revenues will be used to help organize meetings with new migrant communities, their leaders and the local government to clarify project area boundaries, resolve conflicts and emphasize the intention of the CFMCs to secure the area (TGC, 2011). The project team will also work to ensure that local migrant communities are receiving project benefits, where feasible, to make sure that incentives are in place to stabilize land-use change in the project area.

Land use planning activities, such as PLUP, will also play an important role in controlling the impacts of in-migration. The development of clear land use plans, and the posting of large maps in public areas, will help to clarify the tenure status of land in the project area. Local communities will be supported in communicating these land use plans to migrants visiting the area, and the public clarification of the tenure system will help to slow migration rates into the area. The variety of forest protection strategies which have been designed for the project will also help to address migration as a driver of deforestation.

5.1.3.3 Agricultural expansion
The clearing of forest lands for agricultural use has been a key driver of deforestation in Oddar Meanchey. This driver has been exacerbated by the rapid population increase in the province. Based on surveys and social appraisals with local communities, it is estimated that 2,000 to 4,000 hectares of the project area may already be cleared for agriculture, which could double every ten years due to the increasing population (TGC, 2011). As the rural population is increasing at a rate of approximately 15,000 migrants per year, demand for agricultural land will require an additional 5,000 to 6,000 hectares annually based on two hectares for each household (TGC 2011). A key strategy that will be employed to address this driver is the development of participatory land use planning (PLUP) exercises to identify existing and future agricultural land. Land use planning exercises will play an important role in the design and implementation of agricultural intensification projects to increase productivity of existing agricultural land will also play an important role in mitigating against this driver (TGC, 2011). This will involve projects to finance the development of water resources, the introduction of new high yielding varieties and improving access to markets and credit.

5.1.3.4 Illegal logging
Illegal logging in Cambodia is widespread and poorly controlled. In Oddar Meanchey, high-value “luxury wood” is sought after for the hotel construction market in Siem Reap. The smuggling of illegal timber is extensive and is often organized by private sector operators
who obtain support from local military and police personnel (Poffenberger, 2009). Forest protection activities will play a key role in reducing the occurrence of illegal logging and will include forest patrols, the building of trenches around CF boundaries, and activities to strengthen the support and cooperation of local authorities. The project will also provide financial support to local FA staff to develop a quick-response mobile unit to deal with illegal forest activities in cooperation with local government, police and military police. Project support for forest protection will also include training in forest management and planning and the provision of uniforms, vehicles, communication equipment, patrol huts, boundary markers, signage, and employment for rangers. Improving communication and coordination between relevant authorities by establishing a cell phone network will help to reduce the efficacy of patrolling and enforcement activities (TGC, 2011). The submission of information on illegal activities through the Frontline SMS texting system from participating communities to a central server will also play an important role in notifying project partners of illegal logging activities and other threats.

5.1.3.5. Fuel-wood consumption
Fuel-wood plays a key role in meeting the energy needs of Cambodia. Ninety-five percent of the population is dependent on biomass for cooking (NIS, 1998). There is no doubt that fuel-wood will remain a key energy resource for many years to come. Fuelwood is also used to produce smoke to repel mosquitoes and insects from livestock and households. In Oddar Meanchey, the 10,000 households in the project area use about 6,000 to 12,000 Mg of fuelwood each year. The introduction of fuel-efficient woodstoves will be an important strategy in addressing this driver. This type of technology can decrease wood use by 25 to 50% (TGC, 2011). Over time, gas and solar energy sources will be introduced to diversify energy sources and reduce fuelwood pressures.

5.1.3.6. Forest fires
As the population in Oddar Meanchey has increased over the last 20 years, so too has the occurrence and intensity of forest fires (TGC 2011). Local communities use fire as a management tool for instigating new vegetation growth, reducing dead wood, and clearing understory vegetation. These fires are often left to burn uncontrolled and can lead to significant forest degradation and deforestation. Approximately 90% of dry season forest fires are caused by people including hunters, children, careless smokers, and farmers burning agricultural residue (Poffenberger, 2009). Forest fires are occasionally started by hunters aiming to drive out wild game (wild pigs, turtles etc.) from heavily forested areas and bees away from their hives. The main approach that has been taken in Cambodia to reduce forest fires is public fire prevention education. To reduce forest fires in the Oddar Meanchey CF areas, hunters, farmers and other forest users who start forest fires will be advised by local community members as part of an educational outreach approach on fire prevention. A host of carbon revenue supported fire control strategies will also be implemented to control and suppress fires. These will involve: capacity building and equipment to build and maintain firebreaks; the removal of dead forest debris; regulation of the use of forest fires for hunting and to clean the forest understory (TGC, 2011). CFMCs in partnership with the FA will clear fire breaks on an annual basis and will facilitate the establishment of fire brigades. Other fire management measures, such as lookout towers and enhanced communication systems, will be organized during stakeholder meetings and the Community Forest Management Plan discussions.

5.2. Strategies to Enhance Forest Carbon Stocks

5.2.1 Assisted Natural Regeneration (ANR)
Forest protection measures in the project area will be complemented with cost-effective assisted natural regeneration (ANR) to enhance and restore carbon sequestration rates. These ANR activities will occur on 4,485 hectares of degraded forest within the project area, and will play an important role in stimulating the regeneration of degraded forest areas. The
ANR areas that have been selected are generally degraded due to forest fires, the clearing of trees for fuel wood and land clearing for agriculture. ANR will be focused in forest areas that would regenerate poorly without any intervention due to severe degradation. The Project Methodology states that ANR activities can only take place in areas that have more than 10% canopy cover, and cannot be conducted on land that naturally has minimal forest cover (as determined through community consultation and ecological assessments). Both evergreen, semi-evergreen and deciduous forests will be targeted for ANR activities, as forest degradation has occurred in all of these forest types in Oddar Meanchey.

The process of selecting ANR areas has involved conducting mapping exercises with the local communities and demarcating degraded forest areas that they view as important to receive ANR treatments. The implementation of ANR silvicultural techniques will start after carbon credits are generated. Community members will be employed to plant tree seedlings in forest openings and carry out other silvicultural activities such as removing competing vegetation in degraded forests and thinning multi-stemmed trees to encourage growth. As a part of these activities, community members will receive training on ANR techniques. Nurseries will also be established along with training on nursery management. ANR activities have only been accounted for in the project budget until 2030, and are expected to decrease to 80% of their potential by this time (TGC, 2011).

5.3. Procedures for Monitoring, Verification and Reporting (MRV)

5.3.1 Monitoring Overview
The monitoring requirements for the OM CF REDD+ project have been set by the Terra Global Capital (TGC) ‘mosaic’ project methodology (2010) in adherence to the Verified Carbon Standard project document (PD) (2011) as well as the Climate, Community and Biodiversity Standard (CCBS) PD (2009). Together these documents set out monitoring, reporting and verification (MRV) requirements for carbon accounting (TGC, 2011) and social and environmental values (CCBA, 2009). The earning of carbon credits therefore depends not only on the scientific assessment of forest biomass and carbon but also on effective monitoring of an extensive list of social, environmental and economic variables related to project interventions. Monitoring activities will be aligned with project implementation activities and reporting requirements. While some monitoring activities will be conducted in an on-going manner (i.e. documentation of project activities), other monitoring activities (such as bi-annual social and biomass assessments) will be conducted at set intervals and aligned with reporting and verification requirements set by the project methodology. In addition to this, Pact, as the implementing partner of the project in years 1-5 (after project implementation begins), is committed to undertaking high quality Monitoring, Evaluation, Reporting and Learning (MERL) in all of its projects as a way of enhancing the value of the project to Pact and OM CF REDD+ stakeholders. The procedures and system for monitoring the OM CF REDD+ Project are outlined in a Monitoring Framework that has been developed by Pact.

5.3.2 Verified Carbon Standard (VCS)
The VCS is a third party accreditation standard that establishes the criteria for validating, measuring, and monitoring carbon offset projects. This standard ensures that the carbon credits bought by businesses and consumers in the voluntary carbon market can be trusted to have real environmental benefits. The VCS Methodology (2010) utilised in the OM CF REDD+ Project addresses data collection, analysis, reporting and verification requirements set by the VCS. This methodology outlines the project monitoring requirements that need to be addressed to prove that greenhouse gas (GHG) benefits and Net Emissions Reductions (NERs) are being generated by the project. The VCS PD (TGC, 2011) sets out the following components of monitoring:
- Deforestation drivers, project activities and emission sources related to REDD project activities inside and outside of the project area.
- Land use land cover (LULC) class and forest strata transitions in the project area, leakage area and reference region using remote-sensing technologies and validated with ground-truth data.
- Carbon stock densities in LULC classes and forest strata.
- Carbon stock increases in the area on which (Assisted Natural Regeneration) ANR is performed.
- Any natural disturbances regardless of the cause of the loss.

The VCS PD states that a monitoring report will be produced which will outline the calculations for actual NERs generated.

### 5.3.3 Climate Communities and Biodiversity Alliance (CCBA)

While the VCS is concerned with the calculation of carbon benefits that arise from the project, the CCB standards are concerned with how the project affects social and environmental values in the project area. In accordance with the CCB standards, the CCBA PD (2009) for the project specifically sets out impacts which are expected to arise from project activities. The CCB standards clearly state that the project must identify all changes in community wellbeing which occur as a result of the project. The OM CF REDD+ project will monitor and evaluate how the project contributes to impacts and changes in social and environmental values as well as changes to forest cover. This will be carried out by conducting regular social assessments, including participatory rural appraisals and household surveys, along with biodiversity assessments and activity reporting. The sources of this data, methods for collection and responsibilities are demonstrated in Table 4.

### 5.3.4 Data Sources and Methods

The project will draw upon multiple data sources and methods for monitoring, reporting and verification including a household survey, participatory rural appraisals, biodiversity assessment, biomass inventory, remote sensing, desktop review and project documentation. Data sources and methods outlined in this section are detailed in the VCS Methodology developed in 2009, the CCBA PD in 2009 and the Pact OM CF REDD+ Work-plan developed in 2011. These data inputs will be collected by CFMCs, CDA, FA, Pact and TGC. Table 5 outlines the data sources, collection methods and responsibilities for the first 5 years of project implementation. While Pact is the primary project implementer in years 1 to 5, responsibility for monitoring and collecting data for the project will be devolved from Pact to CDA and local FA staff following year 5.

#### Table 4 Data sources and methods

<table>
<thead>
<tr>
<th>Category</th>
<th>Method/data source</th>
<th>Frequency</th>
<th>Reporting</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Assessment</td>
<td>Participatory Rural Appraisal</td>
<td>Every 2 years</td>
<td>VCS / CCB</td>
<td>CDA, TGC, Pact</td>
</tr>
<tr>
<td></td>
<td>Household Survey (HHS)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomass inventory</td>
<td>Sample plot field survey</td>
<td>Every 2 years</td>
<td>VCS</td>
<td>Pact, TGC</td>
</tr>
<tr>
<td>Land use land class (LULC) change</td>
<td>Remote sensing</td>
<td>Every 2 years</td>
<td>VCS</td>
<td>TGC</td>
</tr>
<tr>
<td>Biodiversity assessment</td>
<td>Field observation</td>
<td>On-going</td>
<td>CCB</td>
<td>CFMCs, Consultant</td>
</tr>
<tr>
<td>Project documentation</td>
<td>Activity reporting</td>
<td>On-going</td>
<td>VCS / CCB</td>
<td>CFMCs, CDA, Pact, TGC</td>
</tr>
</tbody>
</table>
5.3.5. Participatory and Community-based Monitoring (CBM)

The OM CF REDD+ project aims to ensure that the community will play an active role in the monitoring process. Community-based monitoring has been promoted as an effective way in which to reduce costs associated with the monitoring requirements of REDD+ projects, increase the reliability of forest monitoring data, improve local capacity and enhance a sense of local ownership at the community level (Pratihast & Herold, 2011). The use of community-based monitoring (CBM) in REDD+ projects has also been seen as an important way in which to incorporate local knowledge and inputs into project activities and processes, whilst helping to improve the relevance of information gathered and trust with local communities. In accordance with this, the OM CF REDD+ project will take a participatory approach to Monitoring, Evaluation, Reporting and Learning (MERL). The monitoring framework provides a basis for the development of participatory monitoring systems in the project. Furthermore, one of the project deliverables is to “develop a community-based monitoring system to meet the requirements of VCS and CCBA in which communities assume major responsibility” which consists of “a community-based monitoring framework and training manual that can ensure accurate field data collection and transparent and accountable use of resources in order to satisfy VCS and CCBA reporting requirements for successive verifications.” Thus far, local communities have played an important role in contributing to the monitoring requirements of REDD+ project by assisting with biomass inventories, forest patrolling activities, regular CF meetings, and biodiversity assessments.

In the OM CF REDD+ Project, training materials are currently being developed to assist the community to understand MRV and play a leading role in its implementation. These are being prepared based on the findings of a Participatory MRV workshop which was held with community members in July 2011, and has been followed up by another workshop in September 2012 on participatory data use and analysis. The key objectives of these workshops have been to develop: participants understanding of project monitoring and their role within the MRV process; the information requirements for project monitoring; data collection, analysis, reporting and use procedures; and opportunities for CFMCs to be involved in data management and MRV. The workshops also contributed to the identification of a terms of reference (TOR) for the role of community monitors. The TOR will be developed and used by Pact to appoint two community monitors to each CFMC (26 in total) in the project implementation phase (following funding). The community monitors will play a crucial role in conducting monitoring at the CF level.

In addition to this, a policy brief has recently been prepared by Pact documenting lesson’s learned throughout the incorporation of community-based MRV in the OM CF REDD+ project. This brief has been developed to inform the national REDD+ process in Cambodia and influence policies to better support and incorporate community-based MRV into the national MRV system. Some of the key policy recommendations of the report, based on important findings from community monitoring activities in the OM CF REDD+ project, were the need to develop: standards and guidelines at the national level to support community data collection; awareness raising activities at the local level to strengthen the capacity of forest-dependent communities to engage in community-based MRV; community based MRV training at the local and subnational level including the development of training materials; flexibility in MRV systems to allow for local adaptation and participation; consultations and workshops on community MRV of social and environmental safeguards; and the incorporation of gender mainstreaming in the national strategy on community-based MRV.

5.3.6. SMS Monitoring

As a way of enhancing monitoring inputs and capacity at the local level and incorporating a CBM approach to the project, Pact undertook research in early 2011 investigating options for mobile phone monitoring of forest protection activities. Based on this study, Pact piloted Frontline SMS, a free open source software used to distribute and collect information via text
messages. This trial established a system to enable local communities to provide monitoring information to Pact and relevant authorities in a cost effective and efficient manner that would also assist in meeting the monitoring requirements set by the VCS and CCB. Patrol reporting was selected for the trial because it is an on-going activity in many of the 13 participating community forestry areas. Furthermore, community patrolling of the forest areas is one of the most important activities in preventing deforestation under the REDD+ initiative, and is thus critical to monitor effectively. The trial found that the Frontline SMS was easily used by community members for data input, and overall was found to be successful in that the CF groups were able to cost-effectively send regular and timely reports to a central database where data could be easily compiled and analysed (Raetz et al., 2011). Based on the findings of the trial, Pact has expanded the use of Frontline SMS to the 13 communities in the project area. As the familiarity with the system grows, it will be expanded to include more variables, according to local capacity and resources. It will be important to ensure that systems for data quality assessment and quality control (QA/QC) are integrated and maintained in order for the data to meet carbon accounting purposes.

5.4. Reference Emissions Level
The reference level or baseline is a very important element for estimating emission reductions in REDD+ projects. Reference levels refer to three key components: historical baseline, crediting baseline and business as usual (Angelsen, 2008). The historical baseline refers to the carbon dioxide emissions from deforestation and degradation over a predetermined period (e.g. 5 to 10 year period) (Angelsen, 2008). The business as usual (BAU) refers to the benchmark for judging the REDD+ measures implemented as a way of calculating additionality (e.g. how would emissions evolve without the REDD+ activities) while crediting baseline is the benchmark for rewarding the country or project if emissions are below BAU level (Angelsen, 2010). Defining a credible reference emission level is thus a critical requirement for implementing the REDD+ mechanism (Sloan & Pelletier, 2012). However, the reference emission level needs to be flexible in order to accommodate national circumstances and capabilities, while pursuing environmental integrity and avoiding perverse incentives (UNFCCC, 2011).

With an official project start date of February 2008, the historical reference period for the OM CF REDD+ project is from November 1990 to June, 2007, based on the availability of adequate satellite imagery (TGC, 2011). The earliest remote sensing image analysed to verify land use cover change is from a NASA satellite image taken in 1990. Several additional images have been analysed from then until the project start, including images from CUDOS, and SPOT.

Based on the historical rates over the 30-year project cycle between 2008 and 2038, under the business as usual scenario, the loss of evergreen forest would be on average 437.4 ha per year, and the loss of mixed forest would be 8,886.8 ha per year in the project areas (Ty, et al., 2011).

5.5. Project Financing
Generating funding and start-up financing remains one of the key challenges to REDD+ demonstration projects in the developing world. There is an important need to invest in establishing methodologies that meet international standards in calculating baselines and measuring emissions. At the initial stage of project development, extensive work has to be conducted such as biomass and social assessments to establish baseline data. Furthermore, almost all the methodologies require high-resolution satellite imagery that adds to the cost of the project as well. As a result, substantial investments need to be made in the initial stages. The up-front project funding for the OM CF REDD+ project have been provided from various organizations including, the John D. and Catherine T. MacArthur Foundation, the Danish International Development Agency (Danida), UK Department for International Development (DfID) and the New Zealand Agency for International Development (NZAid), the William J. Clinton Foundation's Clinton Climate Initiative. In addition, Pact has invested its own funding to maintain project operations since March 2009. In January 2012, UNDP
offered funding to support some remaining activities such as the finalization of the Emission Reduction Purchase Agreement (ERPA), and project verification activities, including re-measuring of forest biomass plots, conducting social assessments and developing Monitoring Reporting and Verification (MRV) systems.

5.6. Payment Distribution
REDD+ is an international financing mechanism used to compensate forest owners and users through national governments for their role in reducing deforestation and improving forest management (Angelsen, 2008). For the OM CF REDD+ project, the Royal Government of Cambodia issued Government Decision 699 (GD.699) which states that the revenues from the project will be channelled through the Technical Working Group on Forest and Environment (TWG-F&E) during the first five years. The TWG F&E is the government-donor coordination initiative for supporting and strengthening development activities within the forestry and environment sectors, especially between the Forestry Administration (FA), the Ministry of Environment (MOE) and the donors. The Royal Government of Cambodia officially recognizes the Community Forestry Management Committees (CFMCs) in the project area under the national community forestry program. It has granted them a 15-year renewable lease and will provide local communities with a minimum 50% share of carbon net revenues. The 50% share of net revenues was the agreement between the Forestry Administration and the Terra Global Capital (TGC).

In October 2011, the 13 CFMC and CF members, CFN chief and CDA staff were invited for a meeting hosted by the central FA in Anlong Veng district, Oddar Meanchey province to provide inputs on the benefit sharing process for the OM CF REDD+ project. Based on this consultation meeting, which was conducted by the Forestry Administration (FA) and Pact Cambodia with the support of Clinton Climate Initiative (CCI), all the stakeholders understood that the revenue (including the net revenue) from the project will be used to cover the cost of project implementation as the first priority. Furthermore, at least 50 percent of the net income will flow to local communities in the project areas, with the remaining funds used to “develop new REDD initiatives” and to “improve the quality of the forests”. Benefit sharing with the local communities will be based on performance (such as carbon sequestration in each site, patrolling, participation and so on), the size of the forest area, high biodiversity value, and the size of the local population. The funds will be channelled through the FA to the local communities. Most of the local communities would like the net revenues to be used for community development projects such as building roads, schools and health care centres as well as alternative livelihood projects related to agricultural intensification, sustainable NTFP collection and processing/marketing, and microfinance. However, the exact amount of carbon revenues to be channelled down to the local communities will not be known until the carbon credits are sold on the voluntary carbon market, which is expected to occur at the end of 2012. Although the proposed revenues flows for the project have been planned (Figure 8), more concrete plans for the revenue distribution will require broad consensus and approval by the project working group and possibly higher levels of government. A reserve of 10-30% of revenues is set aside after each project verification to reduce the possibility and risk of the under-delivery of credits (Yeang, 2010).
5.7. Governance

A good governance system is a critical element for the success of REDD+ project implementation (Pettenella & Brotto, 2012). There are some important aspects of governance which need to be taken into account in REDD+, such as: stakeholder participation; tenure over land and carbon credits; and transparency and accountability in the decision making process (Lawlor et al., 2010). The OM CF REDD+ project is a multi-stakeholder engagement project which involves various actors such as government, NGOs, private sector, and local communities. At the initial stage of the project development, many stakeholder consultation meetings were held to ensure that stakeholders are sufficiently informed and willing to participate in the project.

Another important element of governance is tenure rights over resources, particularly land, forest and carbon. In the context of REDD+, local communities risk being excluded from benefits, especially revenue generated from the project if tenure rights are unclear (Huettner et al., 2008). In the OM CF REDD+ project, the Royal Government of Cambodia has officially recognized the tenure of local communities over forest resource use in the project areas by providing them with a 15-year renewable lease to manage these areas. In addition, the 2002 Forestry Law of Cambodia recognizes the customary rights of local communities over forest resources. However, the government still retains its ownership over the land and carbon credits which is stated in the Government Decision No. 699 (GD.699). Even though the government has ownership over the carbon in the project area, it has committed to maximize the benefits from the REDD+ project to local communities, by pledging more than 50% of net revenues to the local communities participating in the project. To ensure the transparency in benefit distribution, several consultation meetings have been held to discuss
how carbon revenues will be used and how much the project will earn from the sale of credits. In order to implement the project successfully, all the stakeholders need to be held accountable to their duties and responsibilities. Prior to the project's commencement, the roles and responsibilities of all stakeholders were defined, as were their capacity to implement REDD+ project requirements such as forest inventories and social and biodiversity assessments. Furthermore, information on the project has been made available in Khmer and can be accessed by all stakeholders.

5.8 Social and Environmental Safeguards

5.8.1 National Level
Critics of REDD+ have argued that the lack of effective systems in place to monitor social and environmental safeguards will enable REDD+ to proceed without granting the necessary consultations and procedural rights to local communities. Ensuring that there is a system in place to monitor the social and environmental impacts of REDD+ projects, such as livelihoods, governance and biodiversity, is key to the success of REDD+ projects and to achieving the multiple benefits of the REDD+ mechanism (Danielson et al 2011). The Cambodia REDD+ Roadmap has outlined the national policy framework that will be used to uphold and monitor social and environmental safeguards in REDD+ implementation. This framework involves the development of a Consultation and Safeguards Technical Team, which will be responsible for developing the consultation plan and the Strategic Environmental and Social Assessment Framework. Recently, a REDD+ Advisory Group has been established as part of the national REDD+ policy process, which is made up of representatives of organisations working on REDD+ in Cambodia. This Advisory Group provides an important opportunity for Pact and other institutions working on REDD+ demonstration projects to advise on key issues such as social and environmental safeguards, based on lessons learned. While these policy developments are important, Cambodia’s national REDD+ Taskforce have not yet developed a set of nationally appropriate safeguards, based on community consultations, and haven’t prepared any guidelines on how social and environmental safeguards will be applied and monitored.

5.8.2 Social Safeguards
The OM CF REDD+ Project has incorporated social and environmental safeguards into its project design. Although a community monitoring plan has not yet been developed for the project, a Monitoring Framework developed by Pact in 2011 (Pact 2011) addresses social and community impact monitoring. The project activities that Pact and other project stakeholders have been working on to achieve CCB validation and verification are also a key part of the social and environmental safeguards of the OM CF REDD+ Project. As a way of verifying these safeguards, a transparent and independent third-party verification process will take place every two years, which is an important condition of achieving CCB validation and verification. Since the project commenced in 2008, measuring the impacts of the project on the community has involved a variety of both quantitative and qualitative methods. In conducting these assessments, the project has utilized a participatory community monitoring methodology which has involved periodic social assessments consisting of household surveys and participatory rural appraisals, conducted on a bi-annual basis. The social variables that have been monitored in these assessments include, for example, household size, forest-related incomes, employment, access to forest resources, agriculture and crop harvesting, community member knowledge, attitudes, and behaviours related to the project, security of land tenure, and use of forest products and NTFPs (TGC 2012). These variables have been developed according to the monitoring parameters that need to be monitored as part of the VCS and CCB criteria.

Once project implementation commences, project participants including proponents (FA, Pact and TGC) local partners (CDA, CFN and CFMCs) and authorities (local FA, Commune Councils) will provide further inputs into the design, planning, implementation and use of
the community impact monitoring system. As the OM CF REDD+ Project has been established in an area where there has been a strong history of community involvement in the protection of forests, the project has been aimed at ensuring there is extensive community consultation in the development of the monitoring system as a way of empowering existing community institutions and building local capacity. As the community monitoring plan develops, Pact will continue working to ensure that the community has extensive input into selecting the social and environmental variables that they see as important to monitor.

5.8.2.1 Gender
There has been a growing recognition that mainstreaming gender in REDD+ is a key component of upholding environmental and social safeguards, along with being a critical factor for ensuring carbon emissions are reduced effectively. In April 2012, Pact partnered with Women Organizing for Change in Agriculture and Natural Resources (WOCAN) to conduct a gender assessment of the OM CF REDD+ Project. The findings of this assessment were used to devise further strategies that will help to ensure the systematic incorporation of gender into the project’s planning, implementation and monitoring processes. An important component of this is ensuring that women are participating and benefitting from the project and that support systems are in place to monitor the gender-differentiated impacts of the project on vulnerable groups, including those marginalized by gender. Some of the activities that have been planned according to the findings of the gender study include: conducting gender sensitivity training with community members involved in the project; providing focused training for women on literacy, leadership, and NTFPs; and ensuring there is equal access to benefit sharing and decision-making.

5.8.3 Environmental Safeguards
In 2011, a biodiversity assessment was carried out in the project area. The information generated from this assessment has been used to generate a biodiversity monitoring strategy that includes indicators that will need to be monitored to ensure the conservation and vitality of key flora and fauna species in the project sites (Vittoria et al. 2011). While a lack of funding has restricted the extent to which community members can start to gather information and receive training on these indicators, the project’s 30 year project Work Plan and budget have incorporated training sessions and materials for the community monitor’s to enhance their capacity to monitor local biodiversity. As part of its strategy to protect and monitor biodiversity, the project will also create greater awareness among local communities regarding the value of biodiversity, as well as improve patrolling and habitat restoration skills, as a way of controlling hunting and the degradation of critical habitats (TGC 2012). Furthermore, the project will aim to protect and regenerate dry deciduous and evergreen forest ecosystems through improved protection from illegal logging, fire, and through assisted natural regeneration activities. Special attention will be given to High Conservation Value (HCV) areas that are important to the local communities, such as areas that are abundant with resin trees, non-timber forest products, rare wildlife species, and traditional spirit forests. These areas will be monitored by collecting data during community focus group discussions, in-depth interviews, and field surveys within the HCV area (TGC 2011).

6. Conclusion and Recommendations
The OM CF REDD+ project was initiated in 2008. This project has taken a longer time than was initially expected to develop the methodology and collect the data required to achieve VCS and CCBA validation and verification. The escalation of the border conflict between Thailand and Cambodia, which was unforeseen, has negatively impacted on the project’s implementation due to the deployment of the military around and inside project areas and the role this has played in exacerbating deforestation and degradation. Furthermore, inadequate funding to cover initial design and implementation costs has also slowed project
development. As a result, community forest members currently use their own resources for forest protection activities, particularly forest patrolling in the project areas. Learning from this experience indicates that a strong coalition of partners, government support, active community participation, sufficient technical capacity, and adequate start-up financing may contribute to the success of REDD+ project design.

The OM CF REDD+ project is being implemented in 13 community forestry areas and plays an important role as a demonstration project for further REDD+ implementation in Cambodia. There a wide variety of drivers of deforestation effecting the project area in Oddar Meanchey, including both underlying factors such as economic land concessions and international investment and proximate causes such as illegal logging and agricultural land expansion. A range of strategies have been devised to address these drivers and reduce emissions, and these have been incorporated into the 30-year project workplan. These involve forest protection activities and livelihood improvement strategies along with initiatives to improve the collaboration between the vast array of project stakeholders. Due to the funding constraints, these strategies cannot be fully executed until carbon revenues are generated by the project.

In the OM CF REDD+ project, the customary rights of local and indigenous communities to their lands and forests are officially recognized based on the Forestry and Land Laws of Cambodia. However, although clarifying the local community's tenure rights over land and forest resources is an essential step in REDD+ implementation, establishing user rights over carbon also needs to be taken into account. As can be seen from the OM CF REDD+ project, the carbon credits are possessed by the government under the provision of the Government Decision No.699, which is the only legal reference for carbon rights clarification. Although the government owns carbon credits in OM CF REDD+ project, it has committed to offer a minimum net income of 50% to the local communities participating in the project. How the net income benefits will be distributed and utilised by the local communities remains to be seen.
References


TGC. (2012). Reduced Emission from Deforestation and Degradation in Community Forests Oddar Meanchey - Project Design Document for validation under Climate, Community & Biodiversity Standard (CCB)


