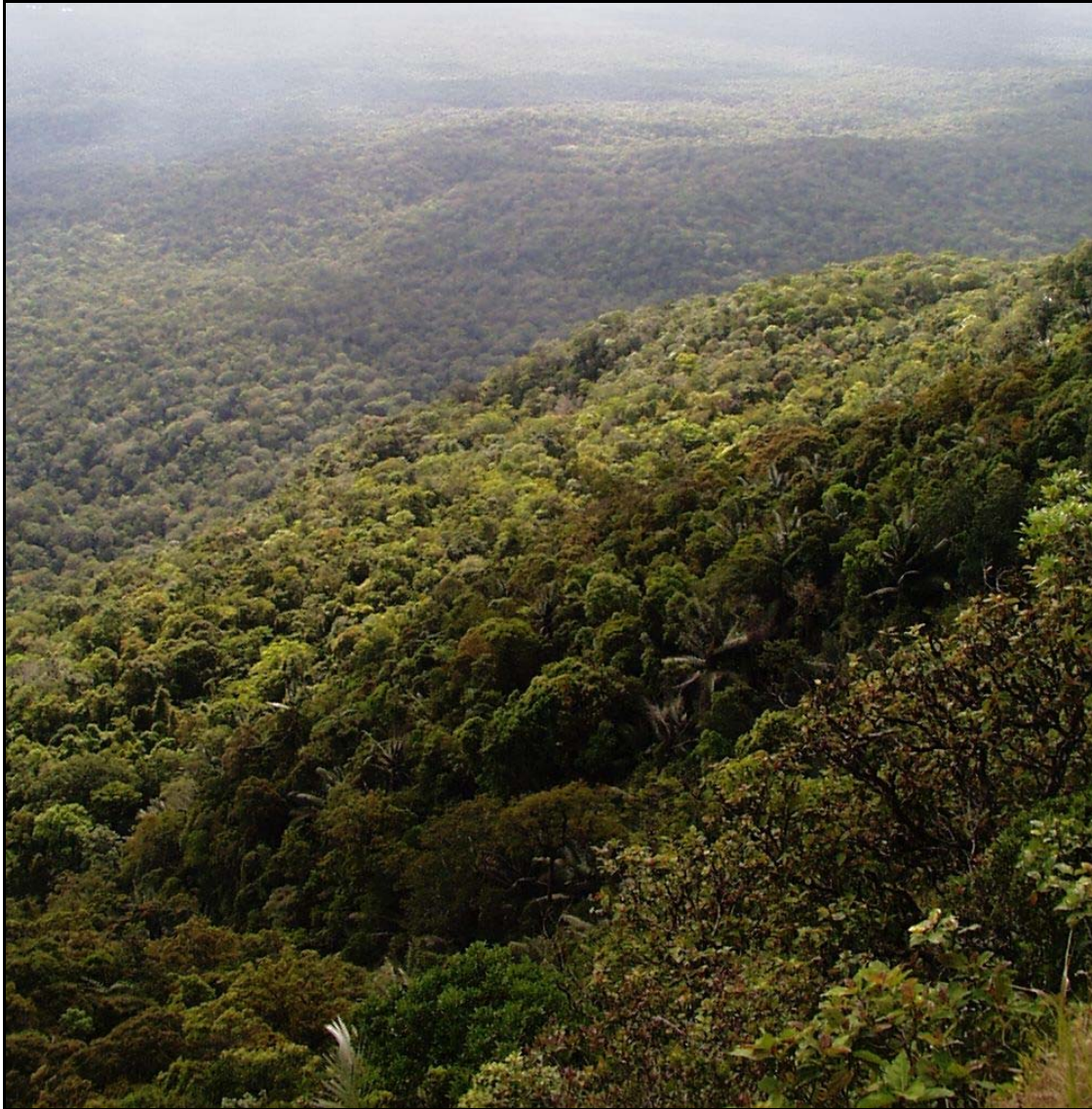


# **Sustainable Landscapes Assessment: Sustainable Forest Management and REDD+ in Cambodia**



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Prepared on Behalf of USAID/Cambodia



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The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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## EXECUTIVE SUMMARY

In response to the *Copenhagen Accord*, the U.S. government is providing support to select countries through the *Global Climate Change Initiative's Sustainable Landscapes Pillar* (GCC-SL) and through the development of *Low Emission Development Strategies* (LEDS).

The *Sustainable Landscapes Pillar* aims to contribute to moving a country into a low greenhouse gas emission, high carbon sequestration development pathway in the land use and forest sector.

The purpose of this assessment is to identify and describe issues and opportunities as guidance for the design of potential USAID investments in the management of Cambodia's forestlands. The current assessment recognizes that *sustainable land use can only be achieved when a society values the retention of forests as much or more than it values land conversion*. As events over the next five years unfold, Cambodia's long-term deforestation rate will be determined. This will be a result of the current contradictions between conservation, economic and development policies, and technical capacity being addressed or remaining unresolved.

The assessment commences with descriptive accounts of Cambodia's forests, Cambodia's objectives, organization of the forest sector, and ongoing assistance to the sector. These provide a basis for the elaboration of 16 issues and opportunities for sustainable forest management and Reducing Emissions from Deforestation and Degradation Plus (REDD+), focusing on the vulnerability of sector reforms, forest governance, community voice, forest management strategies, REDD+ technical issues, and land use planning.

The current nature of the land use, land use change, and forestry (LULUCF) sector in Cambodia provides substantial opportunity for engagement. These opportunities concern sustainable forest management and REDD+ and offer an entry point for contributing to a national LEDS or *Green Growth Strategy*. These opportunities derive from reforms in the forest sector including the development of a *National Forest Program*, evolution of sub-national authorities and democratic development, passage of a protected area law, and the preparation of a REDD Readiness Roadmap.

While community forestry approaches are appealing because of the substantial national target, the two million hectare goal for community forestry is equivalent to only 20 percent of Cambodia's forest areas. The remaining 80 percent of these forests require viable long-term strategies that are robust in the short and medium-terms.

There is a sense of urgency in the sector as land use change threatens to accelerate forest loss and degradation and associated greenhouse gas (GHG) emissions. The result would be to lock Cambodia into a higher carbon emissions path. Constraints for facilitating a path to lower GHG emissions concern the *dichotomy between dialogue and technical competence needs*. The success of many projects is limited by program development that does not adequately address field realities or policy implementation.

It is of critical importance to develop and maintain dialogue space and capacities to address the existing and emerging systemic drivers of land conversion, forest loss, and degradation. This involves ensuring transparent and constructive dialogue and supporting well-designed government program implementation. Public dialogues with rural, urban, gender, and youth-based constituencies are essential. Equally essential is improving awareness and understanding of key decision-makers so as to institutionalize support for community voices in government and community-based institutions.

It is expected that appropriate support for the technical activities required by the REDD+ Readiness Roadmap and its subsidiary strategies will help to ensure that technical capacity matches the required aims and objectives.

## ***Acronyms and Abbreviations***

ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
CBD	Convention on Biological Diversity
CBNRM	Community Based Natural Resource Management
CBO	Community Based Organization
CCAP	Center for Clean Air Policy
CCCA	Cambodian Climate Change Alliance
CCD	Climate Change Department (Cambodia)
CDC	Council for Development of Cambodia
CIB	Cambodian Investment Board
CDM	Clean Development Mechanism
CDP	Commune Development Plan
CF	Community Forestry
CFi	Community Fisheries
CFP	Commune Forest Plan
CI	Conservation International
CIDA	Canadian International Development Agency
CIFOR	Center for International Forestry Research
CIP	Commune Investment Plan
CLUP	Commune Land Use Planning
CMDG	Cambodia's Millennium Development Goals
COM	Council of Ministers
CPA	Community Protected Area
CPP	Cambodian People's Party
DANIDA	Danish International Development Agency
DFID	Department for International Development
ELC	Economic Land Concession
EU	European Union
FA	Forestry Administration
FAO	Food & Agriculture Organization
FCPF	World Bank Forest Carbon Partnership Facility
FFI	Fauna & Flora International
FiA	Fisheries Administration
GDANCP	General Dept. for Administration of Nature Conservation & Protection
GEF	Global Environment Facility
GHG	Greenhouse gas
GIS	Geographic Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
Gt	Gigatons
HARVEST	Helping Address Rural Vulnerabilities and Ecosystem Stability
IFSR	Independent Multi-stakeholder Forest Sector Review
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for the Conservation of Nature
JICA	Japan International Cooperation Agency
LEDS	Low Emission Development Strategy
MAFF	Ministry of Agriculture, Forestry and Fisheries
Masl.	Mean above sea level
M&E	Monitoring and Evaluation Framework
MDG	Millennium Development Goals
MEF	Ministry of Economy and Finance
MIME	Ministry of Industry, Mines and Energy
MJP	Maddox Jolie Pitt Project
MLMUPC	Ministry of Land Management, Urban Planning and Construction
MOE	Ministry of Environment
MOI	Ministry of Interior
MRC	Mekong River Commission
MRD	Ministry of Rural Development
MRV	Measurement, Reporting and Verification
NAPA	National Adaptation Program of Action for climate change
NCCC	National Climate Change Committee

NCDD	National <i>Committee for Democratic Development</i>
NP-SNDD	National Program for Sub-National Democratic Development
NFP	National Forest Program
NGO	Non-Governmental Organization
NPASMP	National Protected Areas Strategic Management Plan
NRM	Natural Resource Management
NSDP	National Strategic Development Plan
NTFP	Non-timber forest product
PA	Protected Area
RAPPAM	Rapid Assessment and Prioritization of Protected Area Management
REDD	Reducing Emissions from Deforestation and Forest Degradation
RECOFTC	The Centre For People and Forests
RGC	Royal Government of Cambodia
RUA	Royal University of Agriculture
RUPP	Royal University of Phnom Penh
SFM	Sustainable Forest Management
SLC	Social Land Concession
SNA	Sub-National Administration
TWG	Technical Working Group
TWG F&E	Technical Working Group on Forestry and the Environment
UNDP	United Nations Development Program
UNESCO	United National Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations Collaborative initiative on Reducing Emissions from Deforestation and forest Degradation (REDD) in developing countries
USAID	United States Agency for International Development
USG	United States Government

## INTRODUCTION

### 1.1. USAID's Sustainable Landscapes and LEDS program

During the 15th *Conference of Parties (COP)* meeting for the *UN Framework Convention on Climate Change (UNFCCC)* in Copenhagen in 2009, the U.S. committed to contributing \$1 billion in “fast start financing” in line with the *Copenhagen Accord*. One key commitment in the *Copenhagen Accord* was the Reduction in Emissions from Deforestation and forest Degradation (REDD). The Copenhagen Accord emphasizes that “a low emission development strategy is indispensable to sustainable development.” In response, the U.S. government is providing support to select countries through the *Global Climate Change Initiative's Sustainable Landscapes Pillar (GCC-SL)* and through the development of *Low Emission Development Strategies (LEDS)*.

As part of the U.S. government's commitment to addressing climate change, USAID has committed to assisting 20 countries to develop their respective LEDS by the end of 2013. The crosscutting U.S.-funded program *Enhancing Capacity for Low Emission Development Strategies (EC-LEDS)* embraces the goals and strategic approach of the *Sustainable Landscapes* investments to work on national climate change priorities in this sector. LEDS are country-led analytical, strategic, and policy initiatives aimed at advancing robust economic growth, while significantly reducing greenhouse gas (GHG) emissions associated with that growth. LEDS will enable countries to transition to low carbon economic development resulting in sustained growth in employment and investment, increased financial flows through carbon markets, reduced GHG emissions, and other social, economic, and environmental benefits.

Sustainable landscapes investments contribute to moving a country into a low GHG emission, high carbon sequestration development pathway in the land use sector. For the 2011 fiscal year, the goal of sustainable landscapes programming is to slow, halt, and reverse deforestation as outlined in the U.S. REDD+ Strategy. USAID Missions implementing GCC-SL programming are required to report on the following Global Climate Change Indicator (Program Element 4.8.2):

*“Quantity of greenhouse gas emissions, measured in metric tons of CO2 equivalent, reduced, or sequestered as a result of U.S. government assistance.”*

To achieve the purpose and indicators of the GCC-SL pillar, Sustainable Landscapes (SL) policy priorities focus on the following:

1. Creation or implementation of national or sub-national REDD-plus strategies: Priority actions include the development of national REDD+ strategies, national and sub-national forest and land-use planning and strategies, and the creation of national baselines for measuring forest-related emissions and sequestration.
2. Greenhouse gas inventories and accounting: Priorities include the development of greenhouse gas emissions inventories, baselines, and accounting, carbon market revenue frameworks, and social safeguards.
3. Forest carbon market readiness: Priority actions include strengthening the enabling environment to sequester carbon through forest management, governance, land tenure and carbon rights, and institutional capacity, as well as by supporting carbon revenue distribution systems and legal frameworks.
4. Targeted field demonstrations and investments: Priority field actions are large-scale demonstration of forest emissions reductions and increased sequestration. Cost-effective interventions may include agro-forestry, plantations that alleviate pressures on natural forests, and restoration of degraded lands through use of trees.

## 1.2. Changing Context of Land Use and Forestry in Cambodia

Cambodia's re-emergence from armed conflict and political insecurity in the 1990s coincided with growing international awareness of the global scale of environmental degradation and its implications for human wellbeing and economic stability. During the 1990s, Cambodia included provisions to protect the environment in its new *Constitution* and ratified a number of international treaties that protect biodiversity, forests, fisheries, wildlife, and reduce climate change that affects them. These include the:

- *World Heritage Convention (WHC)* in 1992.
- *United Nations Framework Convention on Climate Change (UNFCCC)* in 1995.
- *Convention on Biological Diversity (CBD)* in 1995 and has since produced four updates on activities to meet biodiversity goals (RGC, 2009).
- *Convention on International Trade in Endangered Species (CITES)* in 1997.
- *UNESCO Network of Biosphere Reserves* in 1997; three core areas of the Tonle Sap have been designated as reserves.
- *United Nations Convention to Combat Desertification (UNCCD)* in 1997.
- *Convention on Wetlands of International Importance (Ramsar Convention)* in 1999; three Ramsar sites covering river system, flood plain system, and coastal mangrove habitats have been listed.
- Kyoto Protocol in 2002.
- *Mekong River Commission (MRC)*.
- *International Tropical Timber Association (ITTO)*.

As international programs for addressing these issues emerged, Cambodia undertook the development of institutions and programs in natural resource management. While initial progress in developing the policy frameworks and the enabling environment required to support environmental management were made, investment levels and national capabilities were inadequate to achieve a position at which impacts could be sustained.

There have been three recent reviews of the management of the Cambodia forest sector. The first is from The *Forest Concession Review* in 2000. This review recognized a widespread lack of compliance in forestry operations in timber concessions with the principles of sustainable forestry and associated legal requirements. The second review in 2004 by the *Independent Multi-Stakeholder Forest Sector Review (IFSR 2004)* took a broader view of issues concerning forest policy and management. This essentially resulted in the cessation of forestry concession activities though some annual logging coupe agreements and illegal logging also persists.

The third review by The *Independent Multi-Stakeholder Forest Sector Review* promoted the development of a *National Forest Program (NFP)* under the auspices of the Royal Government of Cambodia (RGC) with the guidance of the Forestry Administration (FA). Together with the forestry Law, the NFP is the main guiding instrument for the implementation of the RGC's *National Forest Policy*. In addition, the RGC has prepared a *National Fisheries Action Plan (NFAP)* and passed the *Protected Areas Law* in 2009 which mandates the development of a *National Protected Areas Strategic Management Plan (NPASMP)*.

Cambodia has a high forest cover estimated at 50 to 60 percent, and the RGC currently has a *Millennium Development (MDG)* goal of 60 percent forest cover. Nevertheless, pressures on land and resource use have further intensified in recent years as the economy has been growing, particularly since 2005 as the pace of development in the agricultural and mining sectors quickened, and the demand for domestic timber accelerated. As a result, the pace of allocation of forestlands to economic land concessions has also increased and reportedly includes as much as five percent of Cambodia's protected areas.



As such, the United Nations Framework Convention on Climate Change (UNFCCC) focus on *Land Use, Land Use Change and Forestry* (LULUCF) is of particular significance for Cambodia. Carbon emissions from this sector are Cambodia's major source of GHG emissions, partially because development in other sectors has remained limited until recently. Nevertheless, Cambodia's high forest cover provides opportunity for ensuring forest management will be a major component of any potential low carbon development strategy. While Cambodia may benefit from new technologies in support of green growth, it is to be expected that emissions in other sectors (e.g., industry, infrastructure, mines, and transport) will increase as energy consumption increases in support of economic development.

Both the RGC and its development partners have recognized this increase and have collaborated in the development of a number of related policy and institutional reforms. In recent years, Cambodia established the *National Committee for Climate Change* (NCCC) and has supported the activities of a range of line agencies with responsibilities over various aspects of natural resource management. Cambodia drafted its initial *National Adaptation Program of Action to Climate Change* in 2006 and established the *Cambodian Climate Change Alliance* (CCCA). The CCCA manages a multi-donor trust fund for support adaptation and mitigation activities. A *REDD-Readiness Plan* has been approved for funding by the *Forest Carbon Partnership Facility* (FCPF), albeit with conditions.

The RGC has also placed increasing importance of the decentralization and de-concentration (D+D) of power through a sub-national program now managed by the *National Committee for Sub-National Democratic Development* (NCDD). Recently, the Prime Minister directed the forestry and fisheries sectors to harmonize their existing legislation with the decentralization and de-concentration (D+D) process. In September 2011, NCDD held a meeting with line agencies to address the implementation.

### **1.3. Purpose and Scope of the Assessment**

The purpose of the Sustainable Landscapes Assessment is to identify and describe issues and opportunities in the management of Cambodia's forestlands. While carbon emissions are a key indicator of USAID's *Sustainable Landscapes Pillar*, the scope for undertaking activities include direct and indirect approaches to mitigation. As deforestation and forest degradation are the key sources of GHG emissions in Cambodia, sustainable forest management, including governance and the mitigation of land use change, and REDD+ strategies will be an important part of an overarching LEDES in Cambodia.

While Cambodia's current *Millennium Development Goal* (MDG) of retaining a forest cover of 60 percent is laudable, it appears unrealistic to expect this will refer to native forest cover when viewed in the current context of land-use change in Cambodia. In view of this, the current assessment recognizes that:

*Sustainable land use can only be achieved when a society values the retention of forest as much or more than it values land conversion.*

Events over the next five years will determine Cambodia's long-term deforestation rate as challenges posed by the current contradictions between conservation and development policies are either addressed or remain unresolved. The scope for this assessment therefore remains wide, including national and sub-national policy, regulatory, and institutional frameworks; as well as sector and field-based program development and implementation including community-based initiatives.

The assessment includes consideration of the types of support and working arrangements USAID can employ to intersect with other USAID programs. To date, USAID/Cambodia's approach aims to achieve objectives in three broad sectors:

1. Democracy and Governance: specifically on human rights, political processes, governance, legal reform, and counter trafficking-in-persons.
2. Health Service Delivery: focuses on maternal, newborn, and child health, as well as infectious diseases and health systems strengthening.
3. Rural Poverty: works in food security, nutrition, economic growth, resilience to climate change, and rational management of natural resources.

USAID/Cambodia supports all three U.S. Presidential Initiatives: Feed the Future, Global Climate Change, and Global Health. The Global Climate Change, Feed the Future Initiatives and the Helping Address Rural Vulnerabilities and Ecosystem STability Program (HARVEST) are designed to improve food security through enhanced agricultural development and rational management of natural resources in Cambodia. The five-year program is designed to increase food availability and access by bolstering productivity of agriculture, fisheries and forestry; support the adoption of climate change adaptation techniques; strengthen value-added chains; and create private sector led rural employment. USAID/Cambodia's Micro, Small, and Medium Enterprise Program (MSME) supports non-timber forest product value chains, and eco-tourism in critical biodiversity areas of Cambodia. USAID's Regional Development Mission for Asia (RDMA) has several regional environmental programs including the Lowering Emissions from Asia's Forests (LEAF) Program and the Low Emissions Asian Development (LEAD) Program.

The Sustainable Landscapes Assessment was undertaken by a consultant team who has more than 35 years of combined experience working in Cambodia. An iterative approach was adopted following the initial briefing meeting with USAID. A report outline was developed following the first round of interviews with state and non-state actors in the natural resources sector. The findings of a second set of interviews undertaken during two field trips to Koh Kong, Kratie and Monduliri provinces were then integrated during the preparation of the first draft, followed by a presentation to USAID senior program staff. Feedback from the presentation and first draft were then integrated along with the findings from a third round of interviews with key actors based in Phnom Penh to produce the final draft. The assessment benefits from information and analyses recently developed by the consultants for the USAID/HARVEST food security project and other recent work done on behalf of the *Center for Clean Air Policy* (Ashwell et.al. 2010).

## 2. CAMBODIA'S FORESTS

Chapter 2 focuses on providing a general understanding of the nature and status of Cambodia's forests and the implications for the conservation and sustainable use of Cambodia's forests and forest resources as prescribed in the *Convention on Biological Diversity* (CBD) to which the *Royal Government of Cambodia* (RGC) and its donors are signatory.

### **Box 1: The Nature and Status of Forests**

The **nature** of forests concerns the *character* and *inherent productivity* of natural forests and related vegetation types. The *character* of these vegetation types includes the vegetation structure (physiognomy), species composition (community structure), and the genetic information contained therein. The *inherent productivity* includes the standing volumes and growth rates of these vegetation types under *natural* conditions.

The **status** of forests concerns their *cover* and *condition*. The forest *cover* includes the area of each of the constituent forest/vegetation formations whilst the forest condition includes the integrity of natural forest in terms of its extent of fragmentation of forest areas and the degradation of their character and productivity.

A clear understanding of the **nature** and **status** of the nation's forests is required to address forest management issues (see Box 1). Descriptions and maps of Cambodia's forests vary in terms of their approach. This variance is of concern as the application of data-derived assessments that lack adequate definition will result in misrepresenting the inherent productivity and economic potential of forest resources as well as their potential for mitigating Greenhouse gas (GHG) emissions and their conservation significance. This raises the question:

*What is the utility of recent assessments of Cambodia's forests and related vegetation?*

### **2.1. The Nature of Cambodia's Forests**

Cambodia is located within the Indo-Malayan biological realm. The flora of lower altitudes is typical of the **Indochinese floristic province** and contrasts with the altitudes of the *Chinese*, *Indo-Burman*, and *Indo-Malayan floristic provinces*. That of the higher altitudes shares affinity with those of the *Indo-Malayan floristic province* (Dy Phon 1982). The large majority of Cambodia's forest areas are categorized as one of three major forest formations: evergreen, semi-evergreen, and deciduous forests. Trees belonging to the families *Dipterocarpaceae*, *Leguminosae*, *Lythraceae*, and *Fagaceae* variously dominate these associations though *Pinaceae* or *Podocarpaceae* dominate in some areas. Other common formations include secondary forests, heath (dwarf evergreen) forests, bamboo forests, coastal mangroves, and the flooded forests that are associated with the Tonle Sap Great Lake, and other wetlands.

Evergreen, semi-evergreen, and deciduous forest formations encompass a number of forest complexes and wide range of floristic plant communities associated with varying geological substrates, soils, climate, fire, and disturbance regimes (Legris and Blasco 1970, Dy Phon 1981, IFSR 2004, BPAMP 2007). For example, the evergreen forest formation is divided into three forest complexes: (i) lowland wet evergreen forests; (ii) sub-montane wet evergreen forests, and (iii) lowland dry evergreen forests. Similarly, lowland wet evergreen forests include at least two forest communities of tall forest that are intermixed with one another and a heath forest<sup>1</sup> community (e.g., Dy Phon 1971, FAO 1971).

<sup>1</sup> Cambodian heath forest is an analog of Bornean heath forests that occurs on poor sandy soils, though species composition differs. Some authors refer to this forest type as *dwarf evergreen forest* (foret sempervirente basse).

### Forest Typology

Patterns of terrestrial vegetation diversity in Cambodia and the region are covered in recent reviews (IUCN 1997, IFSR. 2004, McDonald 2004, Rundel 1999).

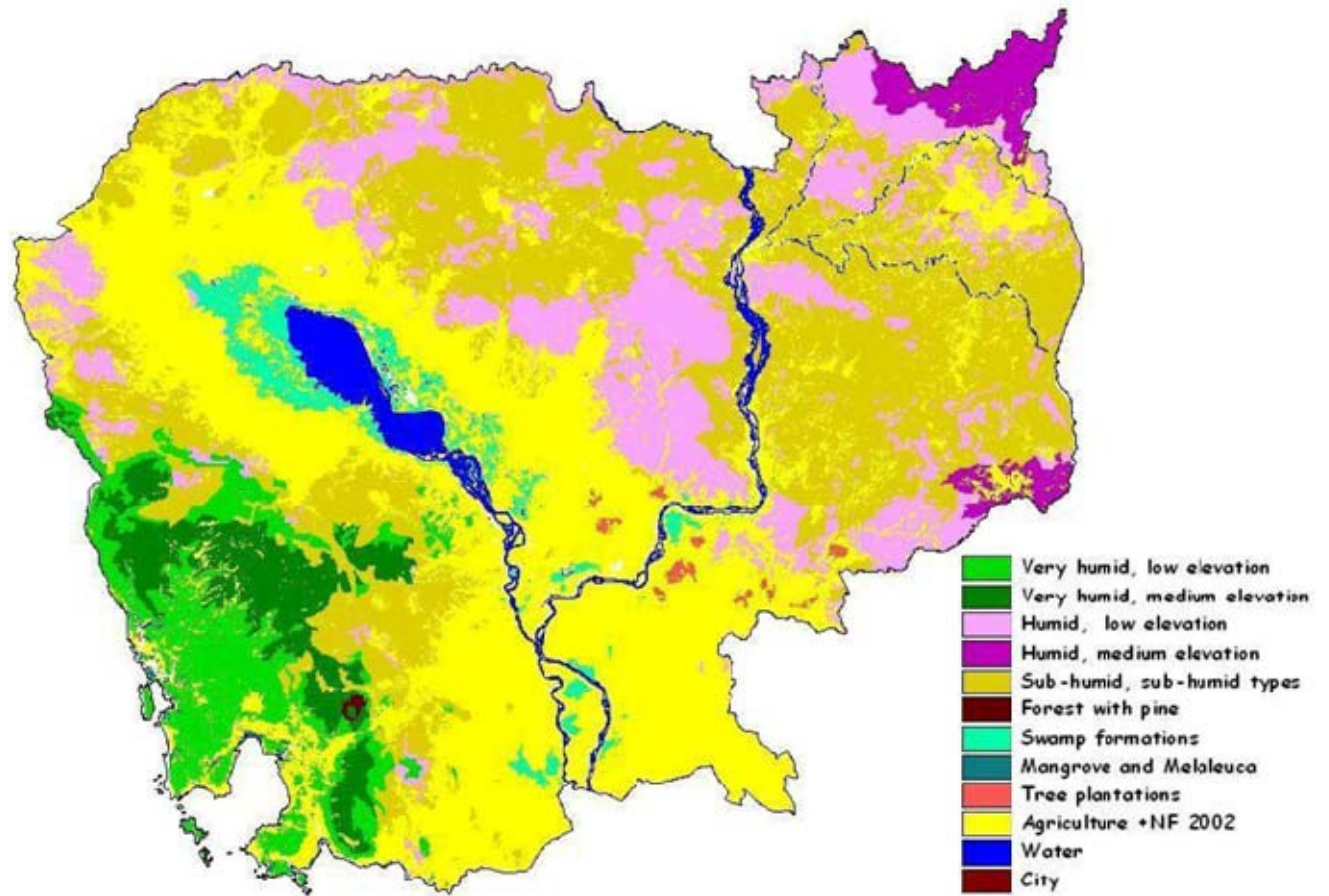
The forest classification based on work by Cambodian and French botanists and foresters prior to the war remains the most comprehensive and useful typology to date (see Figure 1 and Box 2). It describes the major patterns in the diversity, species composition, and structure of Cambodia's vegetation within an ecological framework that includes consideration of the impacts of disturbance on vegetation structure and composition. It shows that the important determinants of vegetation patterns are the general climatic conditions, elevation, and proximity to the coast, geological substrates, soils, and mankind's impact. Seventeen vegetation formations encompassing 30 vegetation types are associated with various geological substrates (Table 1). Many of these represent a complex or mosaic of plant communities that reflect finer scale patterns in forest structure and composition as evidenced by more than 70 plant communities that have been described in Cambodia (Ashwell 2007).

Table 1: Major vegetation types in Cambodia.

General Ecology	Vegetation Types	Area (km <sup>2</sup> )	Area (%)
Very Humid Sub-Montane	Sub-montane moist evergreen forest	3,738.43	2.06
	- on sandstones etc.	3,131.90	1.73
	- on intrusive volcanics	606.54	0.33
	Sub-montane shrubland	57.92	0.03
	Sub-montane grassland	324.75	0.18
Humid Sub-Montane	Sub-montane dry evergreen forest	841.25	0.46
	Sub-montane semi-evergreen forest	213.13	0.12
Very Humid Lowland	Lowland moist evergreen forest	13,706.48	7.56
	- on old alluvial pediments	1,104.62	0.61
	- on sandstones etc.	10,772.08	5.94
	- on basalts	305.38	0.17
	- on other volcanics	1,391.18	0.77
Humid Lowland	Lowland dry evergreen forest	19,564.37	10.78
	- on alluvia	12,304.85	6.78
	- on sandstones	2,523.66	1.39
	- on basalts	1,662.25	0.92
	- on other volcanic substrates	3,073.46	1.69
	Lowland semi-evergreen forest	13,399.75	7.39
	- on alluvia	6,261.96	3.45
	- on sandstones etc.	3,695.60	2.04
	- on basalts	1,313.36	0.72
	- on other volcanic substrates	2,127.16	1.17
	Riparian forest	3,823.58	2.11
Sub-Humid Fire Disclimaxes	Deciduous forest and woodland	40,240.58	22.18
	- on alluvia	22,963.21	12.66
	- on sandstones etc.	12,744.11	7.02
	- on basalts	1,928.96	1.06
	- on other substrates	2,604.14	1.44
Grasslands and Bare Areas	Coniferous forest	86.45	0.05
	Lowland Grassland	1,472.06	0.81

	Rock outcrop, sand, or barren land	366.93	0.20
Secondary formations derived from closed forests	Lowland shrubland	4,299.41	2.37
	Tree dominated secondary formation	6,211.50	3.42
	Bamboo forest mosaic	2,362.18	1.30
	Swidden agriculture	3,494.59	1.93

Figure 1: Principal Vegetation Formations in Cambodia



### **Box 2: Development of a Comprehensive Vegetation Map**

The major forest formations of Cambodia are evergreen, semi-evergreen, and deciduous forests. In 2006, forest mapping with satellite techniques estimated that these forests, together with flooded, secondary forests and a few other minor forest types currently cover about 60 percent of Cambodia's land area (FA 2008). Forest and land cover maps produced through satellite interpretations in the post war period generally focus on these very broad forest classifications (e.g., Mekong Secretariat 1993, Forestry Administration 1997, 2000, 2003, 2006, and 2008). Japan International Cooperation Agency (JICA) 2003 undertook a more detailed forest mapping exercise. While these broad forest cover assessments are useful for general purposes, they are of limited utility for informing sustainable forest management or biodiversity conservation strategies because they do not adequately reflect the:

- Diversity of plant communities and the ecological patterns and processes that determine the nature, diversity, and biological productivity within an ecological framework.
- Extent of degradation each of these communities has experienced.

Patterns of terrestrial vegetation diversity in Cambodia and the region are covered in detail in several recent reviews (Ashwell 1997, IFSR 2004, McDonald 2004, Rundel 1999, 2001). These accounts draw heavily on both pre- and post-war field botanical and forest assessments and are complemented by pre-war forest cover mapping based on aerial photo interpretation (USAID 1962, Legris and Blasco 1971). The IFSR (2004) and BPAMP (2007) have harmonized JICA's typology with the pre-war forest descriptions to update the pre-war maps. This was achieved by integrating the general classes developed and mapped by JICA with an ecological stratification based upon broad elevation classes, climatic patterns, and the general nature of the geological substrate. The JICA map was selected as the base map. The map has numerous vegetation types compatible with Legris and Blasco's classification, is consistent in the mapping of this classification, portrays accurate vegetation boundaries, and is one of the most up-to-date vegetation cover maps of Cambodia.

Recognition of two general elevation classes (below and above 650 masl) captures widely documented patterns of distinctiveness in the flora of sub-montane and lowland areas as well as differences in the temperature of the coldest months of these areas. General climate patterns separate the wetter more equatorial areas of south-west Cambodia from the drier, more monsoonal northern and eastern regions; as well as differentiates between the cooler sub-montane areas temperature from the warmer lowlands. The general nature of the geological substrate was also used to differentiate vegetation types, where the literature indicated this was a principal determinant of vegetation types and their distribution patterns. Finally, the combination of climatic and geological factors with the general vegetation types mapped by JICA also captured the major factors that influence soil development. Therefore, the JICA map was adapted as follows:

- Evergreen forests were each divided into four types on the basis of the bioclimatic considerations (humidity level and temperature of the coldest months) described in the literature. An elevation with 650 meters was used as the boundary between lowland and sub-montane vegetation floras. The very humid forests (moist evergreen forests) of the coastal ranges and coastal hinterlands were distinguished from the less humid forests (dry evergreen forests) of inland areas.
- Semi-evergreen forests were divided into four types on the basis of the bioclimatic considerations in the same manner.
- Shrublands and grasslands were divided into lowland and sub-montane types using an elevation with 650 meters.
- Extensive lowland forest types (lowland moist evergreen, lowland dry evergreen, lowland semi-evergreen and deciduous forests) were divided on the basis of select categories of surface geology where the literature indicated these had a bearing upon the character of the vegetation.
- The bamboo forests of the mountains of the Cardamom Ranges and Virachey National Park were distinguished from those in inland areas except where the literature and aerial surveys indicated that they resulted from recent disturbance.

The resulting map was "ground-truthed" through an extensive series of aerial surveys with a light aircraft in which over 10,000 aerial photos were taken. These surveys revealed trends in vegetation formation, and canopy structure correlated well with the stratification. The clarity of the trends resulted in statistical verification based upon the measurement of canopy characteristics to be unnecessary. Although the surveys did allow some visual assessment of variation within a vegetation type and enabled minor corrections to the JICA data.

*Source: Ashwell 2007*

The Role of Fire

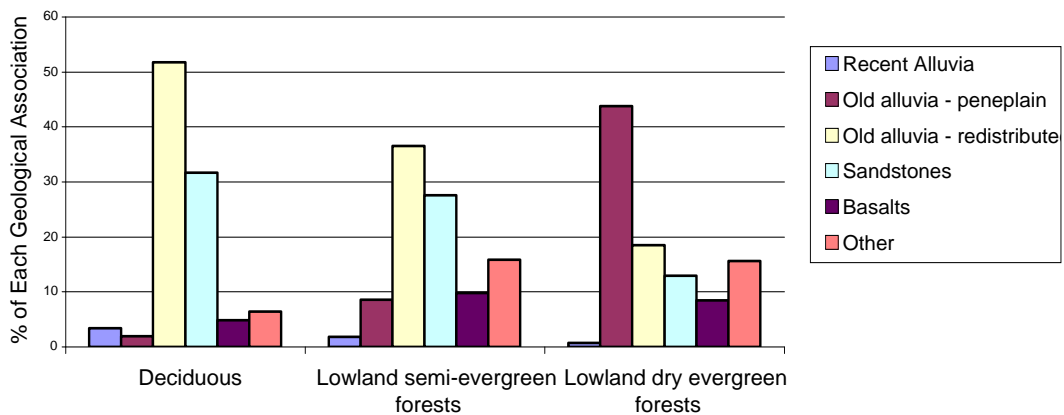
Mankind's impact on vegetation patterns throughout the Indochinese peninsula began long ago (Vidal 1978, Wharton 1968). The northern plains of Cambodia are an example of a landscape significantly modified by a longstanding action of fire that has resulted in the degradation and loss of semi-evergreen and evergreen formations while facilitating the expansion of deciduous forests (Legris and Blasco 1972, Schmid 1969, Wharton 1968). This modification has resulted in vast areas of relatively open deciduous forests on the ancient alluvia pediments and sandstone areas throughout the north and northeast of the country, as well as in some parts of the southwest (see Box 3).

**Box 3: General Role and Impacts of Fire on Forest Patterns**

The dynamics of the vegetation-fire interplay has shaped vast areas of Cambodia's northern and eastern plains and is important from a conservation and forest management standpoint because fire continues to drive the conversion of moister and more species-rich areas to increasingly deciduous formations. Wildfires have a number of origins – almost all the result of human activity. The topography and associated surface geology of Cambodia's extensive lowlands has played a role and continues to influence fire behavior. Whether intentionally set or the result of the spread of a controlled fire, wildfires spread relatively unimpeded through the flat, low-lying forest areas that occur on alluvial and sandstone substrates.

The movement of fire is impeded by the small breaks of slope or 'escarpments' that are often only meters high. In alluvial areas, these are formed by erosion of the original ancient alluvial plain. They mark the transition from the lower eroded portions of ancient alluvial plains where fire tolerant deciduous forests have always been present to some degree, to the relatively higher intact parts of the ancient plain, where the moister and less fire-tolerant vegetation types occur. Through time, recurrent and frequent annual fires have resulted in a simplification of the species composition and structure of forests. The following points provide further evidence of the link between fire, vegetation, and micro topography driven by the weathering and other properties of geological substrates:

- Fire-prone, deciduous forests and fire tolerant, semi-evergreen forests have very similar geological affinities whereas those of the fire intolerant dry evergreen forests differ markedly.
- The semi-evergreen and deciduous forests are largely associated with alluvial pediments (gentle slopes formed by the erosion of the ancient alluvial surface) in northern Cambodia and sandstones in north-eastern Cambodia but do not extend up onto the original old alluvial surface, known as the alluvial peneplain.
- Whereas vast areas of northern and northern and north-eastern Cambodia were once covered by semi-evergreen and dry evergreen forests (Legris and Blasco 1972, Rollet 1962, 1972a, 1972b, and 1972c, Dy Phon 1981), dry evergreen types are almost completely limited to, and dominate, the relatively higher alluvial peneplain areas.



## **2.2. Recent Forest Loss and Degradation**

In the early 90s, Cambodia's forest cover was nearly 70 percent when an international peace accord paved the way for a UN peacekeeping force and national elections. Forest areas remain under threat from unsustainable use, agricultural expansion, and other competing land uses. Heavy and unsustainable use of forest resources over the last 10-15 years has resulted in a dramatic decline in forest cover and substantively reduced the productive capacities of Cambodia's forest ecosystems.

### Changes in Gross Forest Cover

Recent debate has focused upon changes to the nation's forest cover since the early 1990s. Post-war statements of total forest areas derived from these maps are as follows:

- 67.8 percent in 1992 (MRC 1993).
- 68.6 percent in 1994 (Blasco *et.al.* 1996).
- 69.8 percent in 1996 (Forestry Administration 1997).
- 61.2 percent in 2002 (Forestry Administration 2008).
- 58.6 percent in 2006 (Forestry Administration 2008).

These figures represent substantial forest loss since 1968 when the forest cover was 73 percent (Legris and Blasco 1971, 1972) and implies the average rate of annual loss of the nation's forests since 1997 has been about 1.7 percent. Between 2000 and 2005, Cambodia had the 3<sup>rd</sup> highest primary forest deforestation rate globally (FAO 2005).

Forest loss from 1991 to 1997 was primarily concentrated upon the boundary between areas of extensive and intensive agriculture and the major forest blocks (IFSR 2004). Some loss of flooded forest is evident. In dramatic contrast, forest losses since 1997 have been concentrated in a number of key areas. These areas are:

- Deciduous and semi-evergreen forests of far northwestern Cambodia.
- Semi-evergreen and evergreen forests of the basaltic soils in Ratanakiri.
- Evergreen forests along the newly repaired roads in the coastal hinterland.
- Evergreen forests associated with areas of good soil along national route #4.
- Deciduous forests across northern and northeastern Cambodia, though some of this apparent change probably reflects improvements in the mapping of natural grasslands.
- Flooded forests associated with Tonle Sap Lake though some of these apparent changes may partially reflect improvements in mapping grasslands.

Information available on baseline deforestation in these areas is limited. A study by the Center for Clean Air Policy (Ashwell *et. al.*) indicates deforestation rates in coastal areas varied between 1.8 and 4.2 percent per annum depending on their proximity to major national highways.

### Forest Degradation

While there is no definitive statement upon the condition of the nation's forests, it is accepted that extensive forest degradation has occurred throughout the post-war period. Due to inadequate forest typologies, studies on forest degradation are limited. The inadequate forest typologies make it difficult to distinguish between inherent character of a forest and its condition, thus compromising mapping efforts. A number of models of forest degradation have been developed by mapping the vulnerability of forest areas to recurrent disturbance (IRSR 2004, BPAMP 2007 and WCMC 2010). For example, the IFSR (2004) estimated the



extent to which the forest has been compromised by considering forest areas that were vulnerable to recurrent disturbance by classifying forest areas as:

- Areas within 5 km of a village and 1.5 km of a road.
- Areas within 5 km of a village.
- Areas within 1.5 km of a road.
- Less disturbed forest more distant from mapped roads and villages.

These data indicates extensive forest degradation is the rule rather than the exception as only 45 percent of forests fell within the least disturbed category. Over 55 percent of the existing forest area was vulnerable to degradation. Only 27 percent of the nation's land area falls within the "less disturbed" forest class (Table 2).

Table 2 - Disturbance of forest areas

Disturbance	Area (ha.)	% Of Forest Area	% Of Nation area
Roads and villages	2,273,281	20.5	12.5
Villages, no roads	1,812,126	16.3	10.0
Roads, no villages	2,056,004	18.5	11.3
Less disturbed	4,962,810	44.7	27.3

Figure 3 and table 3 provide a statement of the "less disturbed" forest areas in terms of the constituent forest formations and land use. The table is a model of how the nation's forests may look if future degradation and forest loss is focused around villages and existing access, provided no further forest access tracks are constructed<sup>2</sup>.

Table 3 – Degradation of principal forest formations

Forest Formations			Disturbance regime			
			Less disturbed	Roads only	Villages only	Roads and Villages
Evergreen and Semi-evergreen	Very humid	Low Elevation	43.2	32.7	10.8	13.4
		Medium Elevation	77.8	15.5	4.3	2.4
	Humid	Low Elevation	45.3	19.8	17.2	17.6
		Medium Elevation	82.7	7.9	5.0	4.4
Deciduous Sub-humid			41.3	18.6	17.3	22.9
Other forests (edaphically mediated)			42.1	9.6	31.8	16.5
Plantations			0.0	0.0	0.1	99.9
Non-forest	Agriculture		6.9	4.7	16.3	72.1
	Water		46.1	1.8	26.0	26.2
	Urban		0.0	0.0	0.0	100.0

Figure 2: Vulnerability of Forest areas to recurrent disturbance<sup>3</sup>

<sup>2</sup> This interpretation assumes there is no further forest degradation within these areas and no effective conservation measures for areas beyond this.

<sup>3</sup> Yellow = long degraded shrub lands or extensive secondary formations predating the 1990s. Red = deforestation during the 1990s. Grey = agricultural areas. Dark green areas= remote forests where forests were in good condition. Pale green areas = forest areas near roads and villages where forest is easily degraded.

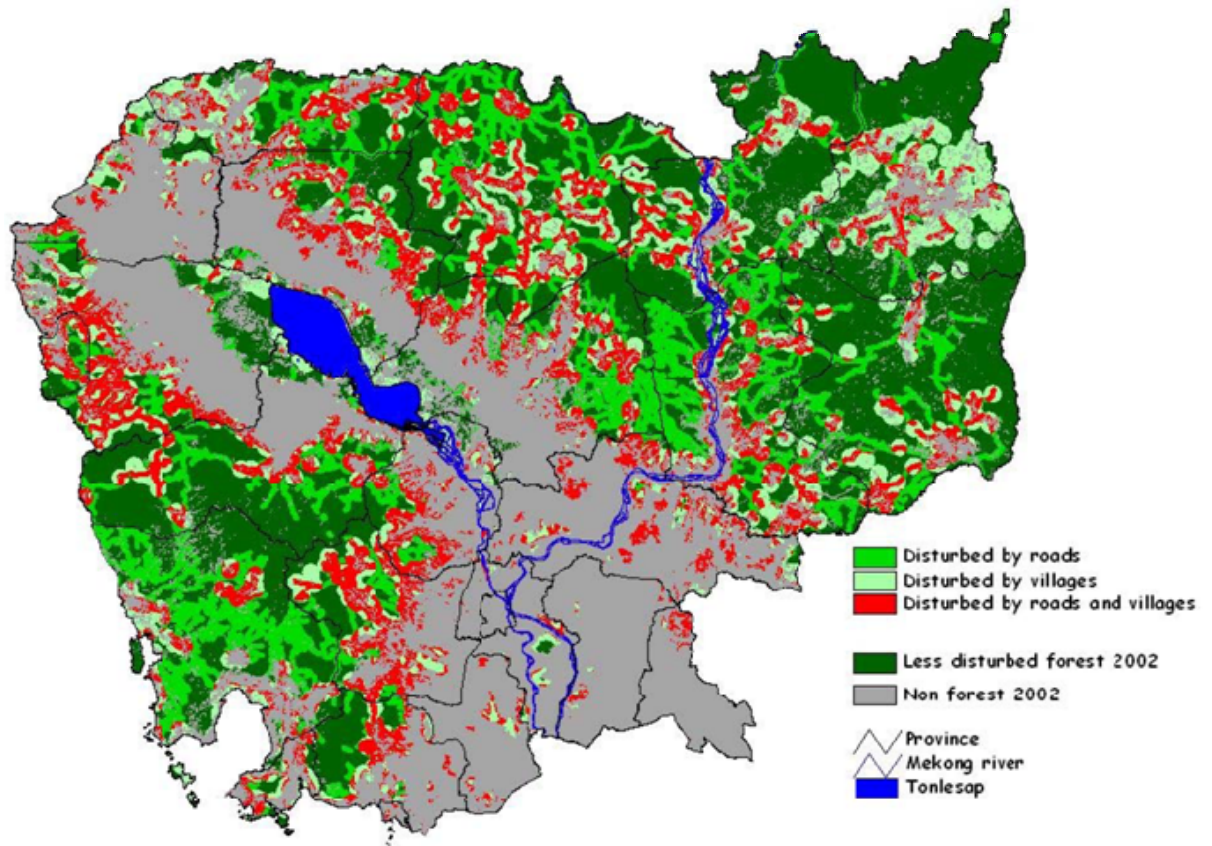
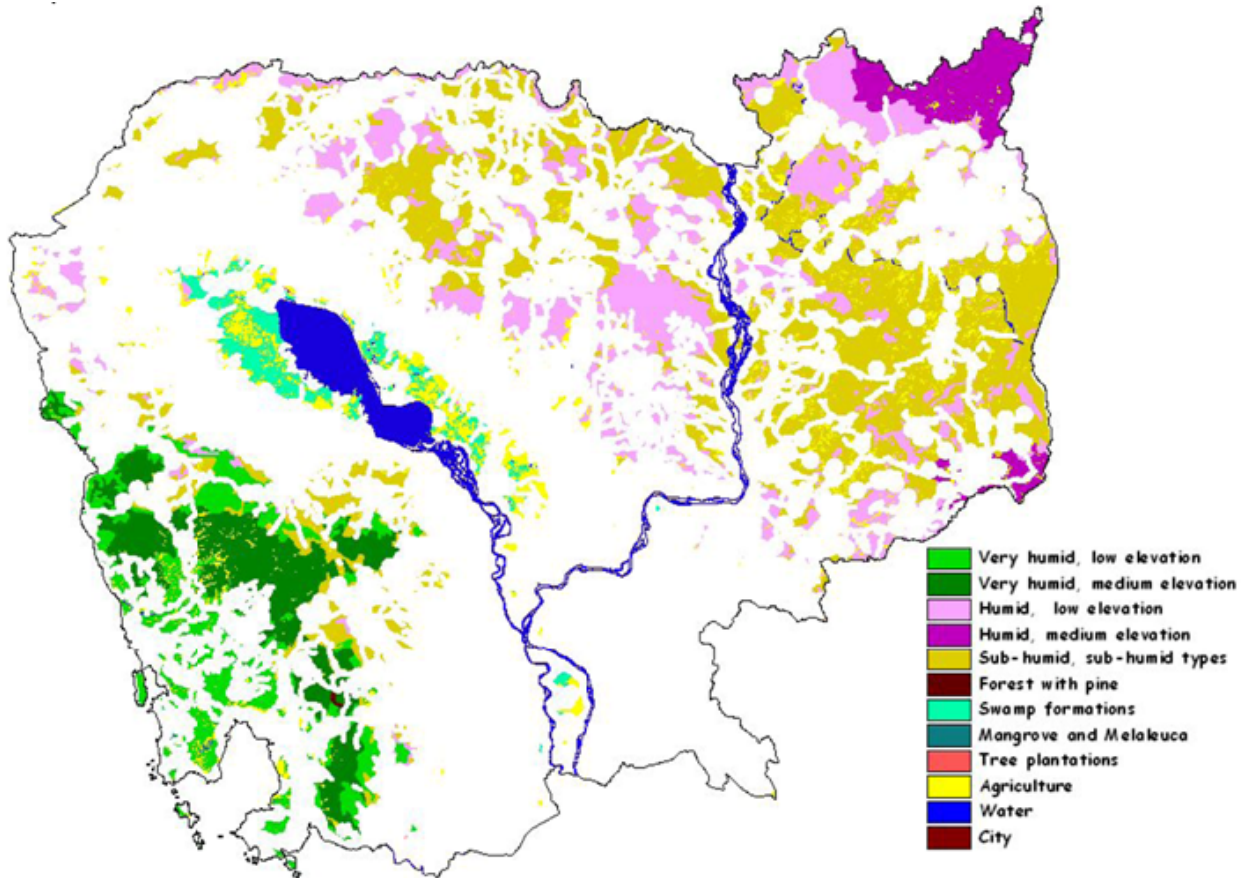


Figure 3: Forest fragmentation model.



Key points to be taken from these data are:

- At a minimum, nearly 60 percent of all lowland forests are disturbed while a considerably lower portion of medium elevation forests are disturbed.
- The very humid, lowland forest formations are largely disturbed by logging rather than by village use.
- Humid, sub-humid, and edaphically mediated forests are equally susceptible to disturbance by both logging and village use.

### 2.3. Focal Conservation Features

Cambodia's diverse array of forest types includes many areas of regional and global biological significance. A range of **focal conservation features** for which **site-based conservation targets** should be set, has been identified for Cambodia by the World Bank's Biodiversity and Protected Areas Management Project (BPAMP) (2007). BPAMP used Geographic Information System (GIS) methodologies to develop area statements for each vegetation type described above in terms of its vulnerability and current protection status. These data were then used to develop conservation targets and identify and prioritize representation gaps for focal dryland vegetation types.

The BPAMP proposed that target setting provides a basis for identifying (i) a number of **focal conservation areas** as being essential for meeting the site-based conservation targets of one or more features, and (ii) **conservation action sites** to represent either entire focal conservation areas or portions of these areas where different conservation actions are

required to improve the representativeness of a given focal conservation area in the protected area system. The following major forest types were identified as focal conservation features:

- Sub-montane moist evergreen forests associated with the following geology:
  - Sandstone.
  - Intrusive volcanics (granite and rhyodacite).
- Lowland moist evergreen forests associated with the following geology:
  - Sandstone.
  - Basalt
  - Other volcanics.
- Lowland dry evergreen forests associated with the following geology:
  - Old alluvial peneplains.
  - Old alluvial pediments.
  - Sandstones.
- Lowland semi-evergreen forests associated with the following geology:
  - Old alluvia.
  - Sandstones.
- Deciduous forests associated with the following geology:
  - Old alluvia.
  - Sandstones.
- Secondary forests associated with degradation and/or regeneration
- Flooded forests and shrublands associated with current floodplain of the Great Lake.

Additional focal conservation features of limited extent, localized, and/or characterized by small patch sizes include:

- Lowland moist evergreen forests associated with the following geology:
  - Old alluvial pediments
  - Limestone.
- Lowland dry evergreen forests associated with the following geology:
  - Limestone.
  - Basalt.
  - Other volcanics.
- Lowland semi-evergreen forests associated with the following geology:
  - Limestones.
  - Basalts.
  - Other volcanics.
- Deciduous forests associated with the following geology:
  - Limestones.
  - Basalts.
  - Other volcanics.
- Riparian forests.
- Coniferous (pine) forests and woodlands.
- Dwarf evergreen forests associated with lowland and submontane areas.
- Submontane shrublands and grasslands.
- Swamp forests associated with impeded drainage in the Northern Plains.
- Bamboo forests.

Focal conservation features for wildlife were identified for mammals, birds, reptiles, and amphibians of particular conservation concern. While the utility of this analysis is limited by survey data in various parts of the country (Figure 4), these data confirm that areas within the Cardamom Mountains, Tonle Sap floodplain, Northern Plains, and Northeastern Cambodia are home to a range of vertebrate fauna of international conservation significance.



### 3. ROYAL GOVERNMENT OF CAMBODIA (RGC) OBJECTIVES AND ORGANIZATION OF THE FOREST SECTOR

#### 3.1. *Legal and Policy Frameworks*<sup>4</sup>

Forestry is recognized by the Royal Government of Cambodia (RGC) as an important resource for poverty alleviation. However, rapid land use changes have raised concerns about the declining potential of the forest to continue to generate social, economic, and environmental benefits for the poor. These concerns have been reflected in a number of key policy documents. In addition to the *Cambodia Millennium Development Goal 7* on 'Ensuring Environmental Sustainability', the *Rectangular Strategy Phase II* emphasizes the importance of 'environmental sustainability through sustainable management and use of natural resources,' and 'enhancement of agricultural sector' which includes forestry and other natural resource sector reforms.

The *National Strategy Development Plan (NSDP) 2009-2013*, which serves as the implementation roadmap of the Rectangular Strategy Phase II, sets out a national target of 60 percent forest cover to be realized through implementation of the new National Forest Program, protected forests, protected areas, community forests, and better management of forestry concessions. The NSDP expresses the need for linking up with global efforts to address the challenge of climate change, including Reducing Emissions from Deforestation and Degradation Plus (REDD+).

In addition to these broader policy frameworks, there are two other types of policy and legal frameworks: (i) various policies and implementing legislation directly related to the forestry sector, and (ii) decentralization and de-concentration.

The key in this category includes the 20-year *National Forest Program (NFP)* (2010) for the forestry sector, the planned *National Protected Areas Strategic Management Plan (NPASMP)*, the *Strategic Planning Framework for Fisheries* (2010), and policies relating to Community Based Natural Resource Management (CBNRM), land-related issues, and climate change.

Approved by the Ministry of Agriculture, Forestry and Fisheries (MAFF) in 2010, the NFP is a strategic framework for forestry sector reform. It builds on the *Forestry Law* (2002) and related sub-decrees and prakas (e.g. Community Forestry under the 2003 sub-decree #79 and 2005 Prakas of MAFF, sub-decrees #53 on classification and registration of Permanent Forest Estate, and reform of forest concessions). The NFP has six programmatic areas:

- Program 1: Forest demarcation, classification, and registration.
- Program 2: Forest conservation and development of forest resources and biodiversity.
- Program 3: Forest law enforcement and governance program.
- Program 4: Community forestry.
- Program 5: Capacity and research development.
- Program 6: Sustainable forest financing.

The new 2008 *Protected Areas Law*, the overarching management framework for protected areas, mandates the *National Protected Areas Strategic Management Plan (NPASMP)*. Finalizing the Plan is a priority for the Ministry of Environment (MOE) if the *Protected Areas Law* is to be implemented. In addition, the NPASMP is an essential element of the REDD-

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<sup>4</sup> Much of the description for this section is adapted from the *REDD Readiness Road Map* for Cambodia.

Readiness Road Map. While a drafting process has not yet been institutionalized, the *Protected Areas Law* identifies some key elements including:

- Development of management plans for each protected area.
- Zoning of protected areas into core, conservation, sustainable use, and community zones. Subject to conditions and regulations, natural resource extraction, agriculture and investment activities are limited to the last two zones.
- Continued establishment of Community Protected Areas (CPA) agreements with local communities in the sustainable-use zone.
- Establishment of a Protected Areas Fund to be managed by the MOE and the Ministry of Economy and Finance (MEF).

Relevant to the forestry sector, the 10-year *Strategic Planning Framework for Fisheries (2010-2019)* indicates the need for mapping, demarcation and protection of flooded forest, strengthening of Community Fisheries (CFi), and regulation of inland fisheries protected areas. Achieving these goals contributes to the reduction in the rate of flooded forest and mangrove loss.

A key shared characteristic of the policies on forestry, fisheries, and protected areas is the push for *Community Based Natural Resource Management (CBNRM)* as a way to reverse the trend of forest loss and its negative effect on local livelihoods. Recognizing the rights of and management by local communities over natural resources, the CBNRM approach has led to the establishment of Community Forests (CF) in Production Forests within the Permanent Forest Reserve, Community Fisheries (CFi) in fisheries areas, and Community Protected Areas (CPA) in protected areas. Local management of natural resources is limited to 15 years for CFs and CPAs, and 3 years for CFis.

Directly related to the forestry sector are land issues. The key legislation on land is the *Land Law (2001)*. The Law includes key provisions on social and economic land concessions Social Land Concessions (SLCs) and Economic Land Concessions (ELCs), indigenous land rights, land registration, and land dispute resolution. The Law provides definitions and distinctions among state public property (e.g., forest and Protected Areas), state private property (i.e., those eligible for the granting of concessions), and indigenous property under the collective ownership category<sup>5</sup>.

In July 2009, the RGC adopted *A Declaration on Land Policy*, supporting broad principles and goals for land management principles in the country. This policy does not specifically mention the forestry sector, although, it does emphasize the need for the acceleration of State Land (both public and private) registration processes and a nation-wide Land Information System (LIS) made available to the public. The policy further states that the Forestry Administration (for Permanent Forest Reserve) and the Ministry of Environment (for Protected Areas) will provide the Ministry of Economy and Finance with an annual inventory on state land, which can then be made publicly available. In addition, the *Spatial Planning Policy* is currently being drafted. A key provision in the draft relates to the links between *Commune Land Use Plans (CLUP)* with district and provincial land use planning processes, as well as land use plans for forest and protected areas.

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<sup>5</sup> The 2001 *Land Law* provides that Economic Land Concessions (ELCs) can only be granted over State private land. ELCs granted prior to the passage of the *Land Law* are to be reduced to comply with the area limit, although, an exemption may be granted if the reduction will compromise exploitation in progress. Article 59 of the Law further prohibits the granting of concessions in several locations, jointly exceeding the 10,000 hectare size limit, in favor of the same person(s) or different legal entities controlled by the same persons.

In compliance with the 2001 *Land Law*, sub-decree #83 on *Procedures of Registration of Land of Indigenous Communities* was adopted in 2009 to allow land registration of indigenous groups. The process starts with an initial evaluation by the *Ministry of Rural Development* (MRD), followed by formal registration of indigenous groups and their collective ownership over state private and state public land with the *Ministry of Interior* (MOI).

### **3.2. Key Government Actors Relating to the Forestry Sector**

A number of key government agencies have authority over the governance of the forestry sector. The following actors have the listed type of land under their management authority:

- *Forestry Administration of Ministry of Agriculture, Forestry and Fisheries (MAFF)*: Permanent Forestry Reserve that is State Public Property, Production Forests that includes Community Forest and Forestry Concessions, Protection Forests, Conversion Forests, and Private Forests.
- *Ministry of Environment*: Protected Areas (State Public Property) including Community Protected Areas, Flooded Forests, and Mangroves inside Protected Areas.
- *Fisheries Administration of MAFF*: Flooded Forests and Mangroves inside the fishery domain (State Public Property) and outside Protected Areas, including Community Fisheries, Fishing Lots, and Fisheries Protected and Conservation Areas.
- *Economic Land Concession Secretariat of MAFF*: Contacting agency for ELCs.
- *Ministry of Land Management, Urban Planning and Construction (MLMUPC)*: Cadastral administration of state land (public and private) and individuals' private land registration, issuing land titles throughout Cambodia, cadastral surveying and mapping, and Geographical Information Systems (GIS) coordination. MLMUPC is also responsible for the implementation of Commune Land Use Planning (CLUP).
- *Ministry for Industry, Mining and Energy (MIME)*: Development, implementation, and management of government policy and strategy with regard to the industry, mining, and energy sector, including extractive industry.

In addition to these sectoral agencies, a number of cross-policy and planning agencies have been established, including:

- *Council for the Development of Cambodia* and its *Cambodia Investment Board*: Approves private investment applications, including those in the areas of land concessionaires and considerations about investment incentives and required authorizations.
- *Supreme National Economic Council (SNEC)*: Coordinates policymaking for domestic and international economic issues, coordinates economic policy advice for the Prime Minister, ensures policy decisions and government programs are consistent with the RGC's economic goals, and monitors implementation of the Prime Minister's socioeconomic policy agenda.
- *Ministry of Economy and Finance (MEF)*: Formulates, implements and monitors the economic policies and public financial management including tax and non-tax collection, public spending, state property (including forest carbon), and regional economic integration<sup>6</sup>.
- *Council for Land Policy*: Resolves conflicts over state land classification and determines which government agency has primary responsibility for particular programs and policies based on consensus of all the members and on existing laws and regulations.

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<sup>6</sup> <http://www.mef.gov.kh/about.php>



- *National Authority for Land Dispute Resolution (NALDR)*: Facilitates resolution of land disputes and land conflicts between private individuals as well as between state agencies/institutions, for both registered and unregistered land. NALDR office is established in each province and district. Their effectiveness has been limited and their roles seem to have overlapped with the Cadastral Commissions<sup>7</sup>.

### 3.3. Decentralization and De-concentration (D&D) Reforms

Based on the *Law on the Administration and Management of the Commune/Sangkat* (2001), Cambodia held communal elections in 2002 and 2007. To push the Decentralization and De-concentration (D&D) reform forward, the RGC adopted the *Strategic Framework Decentralization and De-concentration Reform* in 2005. In 2008, the RGC adopted the *Law on the Administration and Management of the Capital, Provinces, Municipalities, Districts and Khans*, (referred to as the ‘*Organic Law*’) and the establishment of the *National Committee for Democratic Development* (NCDD). These key events led indirectly to the election of capital, provincial, municipal, district, and khan councils in May 2009 (see table below). In 2010, the RGC adopted the 10-Year *National Program for Sub-National Democratic Development* (NP-SNDD) for 2010-2019 and the first 3 years Implementation Plan (IP3) for 2011-2013.

As the result of the D&D reforms, Cambodia’s Sub-National Administration constitutes a structure where a council is established at all levels, i.e., commune, district, and province (Table 4). Of particular relevance are: (i) the councils at the district and provincial levels are not elected directly by the people but by commune councils, and (ii) the governors at these two levels are centrally appointed rather than being selected from the councils. These two points are the key difference compared to the commune. Another difference is district and provincial councils are new and farther from the people, unlike the commune councils which have been in place for a decade and are closer to the people.

Table 4: Sub-National Administration (SNA) Structure in Cambodia<sup>8</sup>

Levels	Legislative	Executive
Provincial/ District	<ul style="list-style-type: none"> <li>- Councils – <b>Indirectly</b> elected (i.e. by current commune councilors)</li> <li>- Accountable to the people and the central government</li> <li>- Represents the people, approves on provincial/district development, and investments plans</li> <li>- Chooses to establish any committees as seen fit</li> </ul>	<ul style="list-style-type: none"> <li>- Governors – Centrally appointed</li> <li>- Accountable to the people, the councils, and the central</li> <li>- Implement plans and decisions of the councils</li> <li>- Responsible for day to day functioning of the provincial/district administration</li> </ul>
Commune	<ul style="list-style-type: none"> <li>- Councils – <b>Popularly</b> elected</li> <li>- Accountable to the people and the central government</li> <li>- Represents the people and approves on commune development/ investment plans</li> <li>- Chooses to establish any committees as seen fit</li> </ul>	<ul style="list-style-type: none"> <li>- Commune chief – <b>Popularly</b> elected</li> <li>- Accountable to the people</li> <li>- Implements plans and decisions of the councils</li> <li>- Responsible for day to day commune administration</li> </ul>

<sup>7</sup> Meeting with NCDD NRM focal persons; *Land and Housing Rights in Cambodia Parallel Report* 2009. Land and Housing Working Group, Cambodia, April 2009, p.25.

<sup>8</sup> Commune Law (2001), Organic Law (2008)

Downward accountability is emphasized among the Sub-National Administration tiers. For the district (not the province), for instance, the *Organic Law* is explicit, stating that it needs to be accountable to the commune council.<sup>9</sup> This downward accountability feature is reflected in the Sub-National Administration planning process where the plan of the higher level (i.e. province and district) needs to reflect the needs as presented from the commune level.<sup>10</sup>

The D&D reform envisions more horizontal coordination and accountability. In each Sub-National Administration, there is a *Board of Governors* whose job includes preparation and implementation of development and investment plans. The plans need to be approved by the council, and the *Board of Governors* needs to be accountable to the council for implementation of the plans, as well as of other decisions adopted by the council. Although the *Board of Governors* is appointed, the council can also propose to the central level authorities to have them removed.<sup>11</sup>

Another important horizontal coordination mechanism is the required *Technical Facilitation Committee* whose job is to coordinate activities (starting with planning) of various line departments and offices at provincial and district levels respectively. In addition, the councils are required to establish two other committees for women and children and for procurement. The councils can choose to set up other committees to address local issues, such as natural resource management.<sup>12</sup>

Specific measures regarding civil engagement are provided under D&D. Open council meetings, public consultations, public hearings, and citizen rights to access information are specifically provided in these key documents. The establishment of the required Committee for Women and Children within each Sub-National Administration is another attempt to create a new channel through which voices and concerns of vulnerable groups can be aired. Non-state actors, including NGOs and private sectors, are encouraged to participate in local governance and development processes through, for instance, the integration of planning and co-funding of development projects<sup>13</sup>.

To ensure collective strength and effectiveness of the Sub-National Administrations (SNA), the establishment of 'National Leagues' (in addition to the current *National League for Commune/Sangkat*) is mandated by the *Organic Law* and is currently being discussed. Two similar options have been proposed. Either, there will be separate national leagues for provincial councils, districts, and communes; or there will only be one for all three tiers.<sup>14</sup>

Decentralization and De-concentration is an ambitious, long-term plan, with a vision to develop SNA management systems based on the principles of democratic participation, downward accountability, and transparency. The vision aims to be recognized through five programmatic activities, including:<sup>15</sup>

- Program 1: Sub-National Administration organizational development.
- Program 2: Human resource management and development.
- Program 3: Transfers of functions.<sup>16</sup>

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<sup>9</sup> The Organic Law (2008), Article 98

<sup>10</sup> NCDD (2010). "Technical guideline on the preparation of the development plan and investment plan for municipalities, districts and khans."

<sup>11</sup> Organic Law, Article 152

<sup>12</sup> Organic Law, Article 118

<sup>13</sup> Organic Law, Article 123-126; NCDD (2010). "Technical guideline on the preparation of the development plan and investment plan for municipalities, districts and khans."; NCDD (2011). "Workshop on Improving Outreach, Public Relation and Information Strategies on Sub-National Level, date April 27, 2011."

<sup>14</sup> National Workshop of SNA, July 28-29, 2011

<sup>15</sup> RGC (2010). National Program for Sub-National Democratic Development (NP-SNDD) 2010-2019.

<sup>16</sup> A function is defined as 'a government activity that addresses a community need through sustained actions that provide benefit in the community over time (NP-SNDD, p.38). More discussions about functions have taken place

- Program 4: Sub-National Administration budget, financial, and asset management.
- Program 5: Support institutions for D&D reform.

In late 2010, the government adopted a three-year plan from 2011-2012 to implement the *National Program for Sub-National Democratic Development*.<sup>17</sup> The focus of the First Three Years Implementation Plan (IP3) is on building capacity of the districts and municipalities so new functions can be transferred from the central level. The IP3 also establishes a program-based approach to implement the reform and a new platform for more involvement from other governmental agencies (e.g., MEF, Ministry of Planning, and associations of SNA councils). The IP3 further emphasizes key democratic principles that need to be achieved through D&D including increasing participation, downward accountability, and involvement of non-state actors.

As indicated by the Prime Minister and the Deputy Minister and Minister of Interior, the vision proposed by the *National Program for Sub-National Democratic Development* and its supporting legal framework implies deep and wide reforms, both political and administrative.<sup>18</sup> Politically, the reform seeks to change some fundamental accountability lines between the central and Sub-National Administration levels, among the Sub-National Administration tiers, and within each tier. These political objectives of the reforms are to be realized in parallel and through various technical and administrative reforms. The councils as they are now are like an empty pot into which gradual functions will be transferred, either through devolution or delegation.<sup>19</sup> Functional transfer however, is still at an early stage where selected line ministries are still conducting their functional reviews, costing, and identifications of functions ready for transfers.

The speed at which sectoral functions will be transferred depends on the level of the sector's de-concentration. Education and health sectors, which have been the most advanced in de-concentrating tasks to their departments, offices, and front-line levels are expected to move faster in functional assignment in the context of D&D. In contrast, agriculture (especially, forestry and fisheries), water resource management, etc. will take more time given their currently less de-concentrated arrangement.<sup>20</sup>

In the last ten years, the forestry and fishery sectors have become more centralized as a result of re-structuring following the 2002 *Forestry Law*. At the provincial level, because the Forestry Administration's administration does not conform to the normal administrative boundary, its sub-national branches cease to be a part of the Provincial Department of MAFF. Recently, the Prime Minister has asked the MOI to review and align the *Forestry Law* (and the *Fishery Law*) with the *Organic Law*. The implications of this revision are discussed further below.<sup>21</sup>

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in service delivery sectors such as education and health. However, there has not been much discussion about how functions should be defined for natural resource management, especially forests.

<sup>17</sup> RGC (2010). "The first three years implementation plan (2011-2013) of NP-SNDD (IP3)."

<sup>18</sup> D&D National Workshop, January 28, 2009.

<sup>19</sup> RGC (2010). National Program for Sub-National Democratic Development (NP-SNDD) 2010-2019.

<sup>20</sup> USAID (2011) Local Governance Assessment.

<sup>21</sup> Interviews with NCDD Natural Resource Management Focal Person, September 20, 2011; Interviews with FA official.

#### **4. ASSISTANCE TO REDD+, SUSTAINABLE FOREST MANAGEMENT, AND LOW EMISSION DEVELOPMENT STRATEGIES RELATED ACTIVITIES**

A wide array of non-state actors provides a diversity of assistance to Reducing Emissions from Deforestation and Degradation Plus (REDD+), Sustainable Forest Management (SFM), and Low Emission Development Strategies (LEDS) related activities. These include development partners, non-state actors, international civil society organizations, and service delivery organizations. Table 5 summarizes the ways each contributes to REDD+, SFM, and LEDS related activities. Short descriptions of activities currently being implemented by key actors are presented in sections 4.2, 4.3, and 4.4. Section 4.5 describes the current status of green growth initiatives and low carbon emission strategies including the Clean Development Mechanism projects

##### ***4.1. Major Development Partner Programs and Projects***

*Asian Development Bank (ADB):* The ADB is in the process of designing a USD 19 million seven-year *Biodiversity Corridors Conservation Project* as a follow-up to its *Biodiversity Corridors Initiative*. The program works with both the Ministry of Environment's (MOE) General Department for Administration of Nature Conservation & Protection (GDANCP) and Ministry of Agriculture, Forestry and Fisheries' (MAFF) Forestry Administration (FA). The project works in the corridors within the Eastern Plains and the Cardamom Mountains and links with biodiversity corridors in Laos, Vietnam, and, ADB has funded FA to prepare for piloting REDD+ strategies.

*Agence Francais pour l'Development (AFD):* AFD has invested in a rubber plantation in Bousra, Mondulkiri province with the company SOKFIN-KCD. The project faces numerous challenges to environmental sustainability related to the acquisition of community lands traditionally used by the indigenous Pnong, including lands located within the Phnom Nam Lyr Wildlife Sanctuary. AFD plans to sign a Memorandum of Understanding with MOE for a three-year project with total budget of eight million Euros on reforestation and livelihood activities. The project will start in 2012 to train MOE rangers to develop capacity to conduct patrolling and monitoring activities and to establish nurseries to provide seedlings to communities living inside the protected areas to afforest and reforest. In the past, AFD had also funded Conservation International's work in the *Central Cardamom Protection Forest* including law enforcement, community livelihoods support, and the consideration of a World Heritage nomination for the Cardamom Mountains.

Table 5: REDD+ and LEDS Activities by Development Partners and Non-State Actors in Cambodia

Reduced Emissions from Deforestation and Forest Degradation (REDD+) and Low Emission Development Strategy (LEDS) Activities	ACTORS																																																	
	Development Partners											Non state actors				National network			Int'l Civil Society			Conservation group																												
	ADB	AFD	ASEAN	CIDA	DANIDA	EU	FAO	GIZ	JICA	KOICA	SIDA	UNDP	UNESCO	UNIDO	USAID	WB	CCHR	CRRT	MJP	NGOF	NRPG	CCN	CFN	CPN	CBET	FACT	NTFPN	EWMI	GERES	LICADHO	OXFAM	PACT	SNV	TAF	BirdLife	CI	FFI	IUCN	RECOFT	WA	WCS	WWF								
Afforestation/ reforestation/ tree plantation	✓																																																	
CBNRM voice (community involvement in forest protection/ conservation through CF, CPA, and CBET)						✓					✓			✓			✓						✓	✓	✓	✓				✓	✓				✓		✓	✓	✓	✓	✓	✓	✓	✓						
Climate change			✓		✓					✓	✓				✓							✓											✓				✓													
Data and information sharing, advocacy																				✓								✓	✓			✓																		
Ethnic minority community rights/land titling				✓			✓					✓							✓																							✓	✓							
Forest carbon															✓												✓		✓												✓	✓								
Forest including mangroves, biodiversity conservation, and protection	✓																	✓															✓	✓	✓	✓			✓	✓										
Forest management and governance				✓	✓						✓																																							
Green growth and low carbon development									✓	✓																																								
Land (land use/CLUP, land administration, titling, and registration)				✓	✓		✓										✓	✓																																
REDD+ Task Force						✓					✓																																							
REDD+ MRV system (satellite forest monitoring system, national forest inventory, and national GHGs inventory)						✓		✓																																										
REDD+ pilot projects (field demonstration)	✓														✓																																			
REDD+ roadmap																																																		
Value chain development (NTFPs)													✓	✓					✓								✓																							
Watershed management (forest protection)															✓																																			

Canadian International Development Agency (CIDA): CIDA is funding part of the Land Administration Sub-Sector Program with a focus on systematic land titling and registration in rural Cambodia. It is also considering funding collective land registration of a few indigenous peoples' communities in Mondulhiri.

Danish International Development Agency (DANIDA): DANIDA has been a lead donor in natural resource and environmental management in Cambodia for a number of years but plans to end activities in 2012. It was instrumental in implementing the Independent Multi-stakeholder Forest Sector Review in 2004 and the subsequent development and oversight of the National Forest Program (NFP). It co-chairs the Technical Working Group on Forestry and Environment (TWG F&E). Support to these activities has included a wide array of technical support including support to the *Commune Land Use Planning (CLUP)* process. DANIDA is assessing aid coordination among development partners involved in the forestry sector. The assessment highlights how effectively key development actors work together. DANIDA co-finances a newly established, four-year sustainable forest management project that is supported by United Nations Development Program (UNDP) and contributes funding to the *Cambodian Climate Change Alliance*, in support of the work of the *National Climate Change Committee (NCCC)*.

European Union (EU): The EU is interested in the timber trade based on sustainable forest management. They have a perspective that the forest sector has changed whilst acknowledging that there are still issues relating to employment, land rights, ELCs, and law enforcement. The EU supports the extension of its *Forest Law Enforcement and Governance in Trade (FLEG/T)* initiative to Cambodia. The EU is co-funding the *Cambodian Climate Change Alliance*. It also funds FFI's *Environmental and Sustainable Management of Natural Resources Program (ENRTP)* which includes contributions to REDD+ and payment for environmental services (PES) in the Cardamom Mountains.

*EU's Forest Law Enforcement and Governance in Trade Initiative (FLEG/T)*

As a member of the *World Trade Organization*, Cambodia can trade timber with the European Union (EU) market if the timber meets the EU's green certification requirements. This involves the establishment of voluntary partnership agreements that include environmental and social safeguards, currently piloted in Indonesia, prior to the development a timber trade agreement. The safeguards are to be developed in line with EU requirements through consultation with the partner country. Encouraging legal extraction in the timber industry aims to capture foreign investment, create employment, and address human rights issues in the timber trade, including those of ethnic minorities.

Ministry of Agriculture, Forestry and Fisheries (MAFF) has expressed an interest in developing a road map for the FLEG/T program. The national timber legality assurance process requires investment and political will from the Royal Government of Cambodia (RGC) including the Cambodian Development Council, Ministry of Commerce, and the Ministry of Economy and Finance (MEF). Given the predominance of the illegal extraction of timber in Cambodia, the EU has proposed to study current timber flows in and out of Cambodia. The EU has a regional FLEG/T Asia Program based in Malaysia and the *EU-Indochina Regional Program* that facilitates regional cooperation to help to minimize the illegal timber trade.

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ): GIZ funded the recently completed *Watershed Management Project* including pilot activities that were carried out in

Siem Reap province. Inter-ministerial *Watershed Management Task Forces* were established at the national and provincial levels. Legal tools to guide and mainstream watershed into development plans were developed. The German Development Bank KfW conducted a feasibility study for a potential land sector project in Cambodia in November 2011. This includes a consideration of supporting three pilot indigenous communities' land titling in Ratanakiri and Mondulakiri provinces.

*Japanese International Cooperation Agency (JICA)*: JICA funds activities to build institutional capacity through the provision of infrastructure, equipment, capacity-building, and technology. It intends to support the implementation of the *REDD Roadmap* through provision of these contributions to the monitoring, reporting and verification (MRV), and reference emission level (REL). Japan has also expressed interest to support development of a bilateral agreement with the MOE for a “Low Carbon Development Society” Roadmap.

*Korean International Cooperation Agency (KOICA)*: KOICA funded the development of Cambodia's *National Green Growth Roadmap* as described in section 4.5. In addition, a Korean rural development project is being implemented at the Institute for Forest and Wildlife Research and Development within the FA to pilot community-based tree plantations in Siem Reap province.

*Swedish International Development Agency (SIDA)*: SIDA has earmarked US\$28 million to support the National D&D Program. In doing so, current working systems at the commune level will be maintained and district and provincial capacity will be strengthened. SIDA also provides funding to the *Cambodian Climate Change Alliance* (a multiple donor initiative) that supports the *National Climate Change Committee* (NCCC).

*United National Educational, Scientific and Cultural Organization (UNESCO)*: UNESCO supports the RGC's efforts to ensure the Angkor Wat and Preah Vihear World Heritage Sites are managed in compliance with the World Heritage Convention. Cambodia is a member of the *World Heritage Committee*. The RGC may have to consider the development of a tentative list of world heritage sites in Cambodia including natural heritage sites. In the past, UNESCO supported conservation efforts on the Tonle Sap and influenced the RGC to renew commitments to sustainably manage the Tonle Sap landscape.

UNESCO has also supported the development of radio programs in ethnic minority languages for broadcasting in select provinces by local radio stations. These include health and education programs developed in Kreung language that have been broadcasted in Ratanakiri and Steung Treng for two hours each day since 2007.

*United Nations Industrial Development Organization (UNIDO)*: UNIDO is conducting a pilot study on non-timber forest products (bamboo, resin, honey, cardamom, and rattan) in a number of provinces including Mondulakiri. The purpose of the study is to develop rural enterprise, create opportunities for rural employment, and promote private sector development for non-timber forest product (NTFP) enterprises through existing national NTFP network.

*United Nations Food and Agricultural Organization (FAO)*: FAO has a long history of assistance to the agriculture and forestry sectors in Cambodia. This includes many years of assistance to the development of community forestry areas and community fisheries areas. They are in the final year of a three-year community forestry project funded by the Spanish government. This project builds capacity within both the FA and local communities to fulfill the 11-step registration process for community forest areas. The work places considerable emphasis on developing resource and needs assessments appropriate to individual communities even in areas supporting degraded forests.

Together with UNDP, FAO finances the implementation of the National REDD Readiness Road Map. FAO's principal area of concern is to assist the REDD task force in the development of an appropriate MRV/REL system.

United Nations Development Program (UNDP): UNDP supports several projects. It is in the fifth year of implementing a seven-year biodiversity conservation project called *Conservation and Landscape Management in the Northern Plains of Cambodia (CALM)* that focuses on priority biodiversity conservation needs. The project is implemented by Wildlife Conservation Society (WCS) in support of protected area management by both the MAFF/FA and MOE/GDANCP. UNDP has also completed other biodiversity and forest conservation projects in the Cardamom Mountains and in Tonle Sap in recent years.

UNDP has developed a four-year *Sustainable Forest Management Project* to reduce CO<sub>2</sub> emissions. The project has commenced implementation of its three components: (i) capacity building of national agencies (FA and MOE/GDANCP) to develop and plan policy to coordinate, manage, and protect forestry resources; (ii) strengthening the voice of individuals in 500 Community Forestry and Community Protected Area sites, including the promotion of rural entrepreneurship, and (iii) improving sustainability of wood energy including experimentation on 1000 hectares of wood lots.

UNDP, a member of the Cambodia Climate Change Alliance, has secured US\$3.6 million to support the REDD+ Roadmap activities. Activities will aim at supporting the national REDD+ Task Force to develop and finalize the national REDD+ strategy and to build capacity at the sub-national level. The UNDP also supports civil society through its small grant facility that uses a vulnerability reduction assessment tool to identify needs and priorities.

United States Agency for International Development (USAID): USAID's five-year HARVEST Project supports sustainable watershed management and climate change adaptation in four provinces around the Tonle Sap Lake. USAID also supports the East West Management Institute-Program on Rights and Justice. The Micro, Small and Medium Enterprise Project (MSME) works in twelve provinces and focuses on three components: (i) value chain development in support of livelihoods, (ii) community based biodiversity conservation in Koh Kong, Oddar Meanchey, Stueng Treng, Preach Vihear and Banteay Meanchey provinces, and (iii) Public-private dialogue. To improve management in areas with high biodiversity, MSME operates in four forest landscapes: Prey Lang, Boeung Per Wildlife Sanctuary, the Cardamom Mountains, and Oddar Meanchey community forests. MSME works with communities on small enterprise development to improve honey collection, beekeeping and processing, resin extraction, and ecotourism. MSME works with 31 community-based organizations in community forests and community protected areas covering 120,000 hectares to facilitate boundary demarcation and non-timber forest management.

World Bank: The World Bank has been a long-term donor to the forest and land sector as well as sub-national democratic development in Cambodia. In earlier years, the Bank supported a concession management project in the forest sector. More recently, it has supported the NCDD through the *Rural Investment and Local Governance Program* and the land sector through land management and titling projects. The World Bank has been engaged in national dialogue and given ongoing support to community forestry through The Centre for People and Forests (RECOFT). Together with other development partners, the Bank has given some consideration to the development of a national demand and supply wood energy strategy by the Ministry of Industry, Mines, and Energy (MIME).

The many projects listed above have made substantial gains, though some have become problematic obliging the Bank to undertake investigations through its own *Inspection Panel* mechanism. Consequently, a decision was made not to continue the forest concession management work, and the Prime Minister canceled the land-titling project in 2009.



Currently, both the Land Allocation for Social and Economic Development (LASED) Project and the Rural Investment and Local Governance Project (RILGP) projects are in their final stages of implementation.

The World Bank has decided not to develop a new portfolio until the RGC addresses the land related issues. The Bank is reviewing its policies with a view to raising the benchmark so that the principle of free, prior and informed consent informs land decisions and applies to safeguards. These constraints do not apply to potential funding under the World Bank administered *Forest Carbon Partnership Facility* (FCPF) as UNDP is to be the implementing partner for this. Proposed work on a *Pilot Project for Climate Resilience*<sup>22</sup> (PPCR) is also to be taken over by UNDP. Cambodia submitted a request for assistance in March 2011 and UNREDD has approved funding for the proposal through FAO and UNDP following minor adjustment of the proposal. In contrast, the World Bank maintains a number of concerns based on the FCPF's *Resolution PC/8/2011/6* on Cambodia's *Readiness Preparation Proposal* (see section 5.2).

Others: In addition to these development partners, the Association of Southeast Asian Nations (ASEAN) provides a regional knowledge network on Climate Change and Forests. In previous years, UK's Department for International Development (DFID) was active in the forest sector. It co-sponsored the Independent Forest Sector Review in 2004 and co-funded the Natural Resource and Environmental Management Program with Danida and New Zealand. DFID's support to the sector has reduced in recent years though it continues its support to the national NCDD program.

#### **4.2. Civil Society Organizations**

##### Non State Actors

There are hundreds of local non-governmental organizations (NGOs) and community-based organizations (CBOs) in Cambodia. Many of these contribute to livelihood development and are increasingly involved in community-based natural resource management. The following active groups give direct support to natural resource management:

Cambodian Center for Human Rights (CCHR): CCHR is a local NGO with hotline services for reporting human rights related abuse and issues. They promote democracy and respect human rights (civil and political rights). CCHR works to empower civil society including community forestry, community protected areas, and other community based organizations to claim their rights to use, manage, and protect forest resources. Their motto is "no risk, no change."

Cambodians for Resource Revenue Transparency (CRRT): CRRT is a coalition of the Centre for Social Development, Development and Partnership in Action (DPA), Economic Institute of Cambodia, NGO Forum on Cambodia, Youth Resource Development Program (YRDP), and the Advocacy and Policy Institute (API). CRRT works with the government and private sector to support transparent and accountable management of revenues from extractive industries (oil, gas and hard mineral resources) for the equitable benefit of all Cambodians.

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<sup>22</sup> Under the Climate Investment Funds' Pilot Program for Climate Resilience, five nation-wide strategic programs for climate resilience were approved. Cambodia received \$105 million to improve irrigation, flood and drought management, climate-resistant agriculture and forestry in coastal areas, and mainstream climate resilience into development planning ([www.climateinvestmentfunds.org/cif](http://www.climateinvestmentfunds.org/cif)).

NGO Forum of Cambodia: This forum is a coalition of 87 national and international NGOs and more than 200 network member organizations. The Forum shares information, debates, and advocates issues affecting the development of Cambodia. Its *Land and Livelihoods Program* and *Environmental Program* focuses on land and environmental issues including land titling, land grabbing, indigenous minority land rights, resettlement and housing rights, forest livelihoods, and forest plantations. A three-year work plan of NGO Forum (2012–2014) will focus on the State property land issues including ELCs and indigenous land titling.

Natural Resource Protection Group (NRP): NRP is active in supporting community-based forest law enforcement. It works in close collaboration with CCHR to raise awareness of the forestry law and other relevant laws in forest based communities. It works closely with communities to both motivate and empower them through awareness raising, enforcement training, and backstopping of community-based actions in forest law enforcement

Maddox Jolie-Pitt Project (MJP): MJP will be registered as a local NGO in 2012. It has worked with the Ministry of the Environment and Thailand's Ministry of Natural Resources and Environment to establish a "green belt" linking protected areas bordering Cambodia and Thailand. The current project focuses on biodiversity conservation and watershed management in the Samlot Multiple Use Area in Battambang and Pailin provinces where it offers support for rural livelihoods development and protected area management.

#### National Networks

Cambodia Climate Change Network (CCCN): CCCN's approach is to encourage coordination and communication among public, private, community-based, and non-governmental organizations stakeholders on the impacts of climate change issues in Cambodia. Its interim board members are from Save Cambodia Wildlife, Sarika Radio, Sreer Khmer, PACT, The Asia Foundation, Oxfam America, and Building Community Voices.

Community Forestry Network (CFN): This network shares information and experiences on practical issues of community forestry management among different stakeholders including representatives of provinces, districts, villages, and foreign and local NGOs. CFN is linked to the national *Community Forestry Working Group* chaired by the FA and provincial community forestry networks.

Cambodia NTFP Working Group: This network supports local communities in managing forest resources sustainably and developing NTFP enterprises through networking, capacity building, enterprise development assistance, policy advocacy, research, and knowledge sharing. The group is a partner and member of a collaborative network of NGOs and community-based organizations in South and Southeast Asia that works with Community Forestry.

Cambodia Community-Based Ecotourism Network: This network consists of over 30 member groups from communities, NGOs, academic institutions, and the private sector. They work on conservation of natural and cultural resources, protection of the environment, and improvement of livelihoods of the poor across the country.

Community Peace Building Network (CPN): The CPN is supported by a local NGO, *Community Capacities for Development* (CCD). The Network members are community leaders from all 24 provinces and work on advocacy activities at the grassroots level to promote rights of communities in managing and utilizing natural resources in a sustainable way.

*Fisheries Action Coalition Team (FACT):* FACT is a coalition of international and national NGOs working on fisheries and natural resources including flooded forests in the Tonle Sap and Mekong floodplains as well as in coastal mangroves areas.

*International Civil Society*

*The Asia Foundation:* The Asia Foundation works with civil society, the private sector, governmental organizations, and alliance partners to strengthen good governance and build democracy to enhance citizen engagement in local decision-making, improve private sector growth, stop human trafficking, and build capacities of libraries. The World Bank is supporting a four-year Project “Demand for Good Governance” that fosters relationship between the government and citizens.

*East West Management Institute (EWMI):* EWMI’s *Cambodia Biodiversity Protection Program* supports grassroots advocacy, contributes to national networks, and supports legal advocacy to people most able and most motivated to protect and manage forest resources. The program works in four large forest landscapes threatened by mining, logging, plantations, ELCs, poaching, resort development, and/or hydropower dams. EWMI provides small grants to Cambodian NGOs and community based organizations in support of community based natural resource management in Prey Lang Forest, Phnom Aural Wildlife Sanctuary, Mondulkiri, and Ratanakiri. In cooperation with local and international partners, EWMI has launched a website called *Open Development Cambodia* that aims to act as a hub for available data about Cambodia’s development investments including a list of all ELCs.

*Group for the Environment, Renewable Energy and Solidarity (GERES):* GERES primarily works on rural energy. It began its programs in Cambodia in 2006 with the new Laos cooking stove. With the new technology, carbon reductions of 769,000 tons CO<sub>2</sub> equivalent have been achieved from 2003 to 2009. GERES prioritizes approaches that address the drivers of forest degradation and that facilitate local development. Since 2008, GERES Cambodia has undertaken a massive biomass-based energy program in order to establish a sustainable energy development model in Cambodia. The GERES team is made up of more than 70 committed and experienced specialists in the energy, environment, agronomy, research, and rural development and education sectors. GERES has a Climate Change Unit (CCU) focusing on carbon finance and climate change vulnerability assessments. GERES is in partnership with UNDP’s Sustainable Forest Management Project and undertakes tree lot demonstration sites in the Southwest Cambodia. Its associate agency, Nexus, was first envisioned by GERES in 2007 and launched by eight NGOs from seven different countries in April 2008. Nexus is working on strengthening local NGOs in climate change adaptation and mitigation.

*Cambodian League for the Promotion and Defense of Human Rights (LICADHO):* LICADHO is a Cambodian NGO that advocates human rights through two main programs: (i) a monitoring and protection program, including monitoring the violation of women and children rights, providing legal advice to victims, and monitoring prisons, and (ii) a promotion and education program, including advocating and protecting grassroots networks and compiling human right cases in a central electronic database. In recent years, LICADHO has become active in advocating on land and forest issues in support of policy development and conflict resolution.

*The Community Legal Education Center (CLEC):* The Community Legal Education Center (CLEC) has been receiving support from USAID and has become a locally registered NGO. The Center educates citizens and government officials on legal empowerment and human rights and has successfully taken on sensitive and high profile land grabbing and illegal eviction cases.

PACT: PACT's Community Forestry Partnership Program builds the capacity of rural Cambodian communities to protect forest resources. It works with community forest groups to generate sustainable livelihoods from forests and act effectively to safeguard forest land from encroachments. The program focuses on: (i) the establishment of community forest areas and tenure legalization, (ii) livelihood improvement and non-timber forest product development including honey, rattan, and resin; and (iii) sustainable financing through market access to carbon credits. With the support of the Clinton Foundation, PACT is involved in assisting the FA to bring community forest carbon credits in Oddar Meanchey to the voluntary carbon market. This includes supporting every step of the process required by the *Voluntary Carbon Standard*, including the execution of a carbon stock assessment and the associated validation process.

Stichting Nederlandse Vrijwilligers or Foundation of Netherlands Volunteers (SNV): SNV works on a pro-poor sustainable tourism project called "The Mekong Discovery Trail". In Cambodia, it works with the Ministry of Tourism and the World Trade Organization to reduce poverty in the country and to conserve the endangered Mekong River dolphins. SNV supported and trained communities in setting up micro, small, and medium enterprises. SNV has been involved in the National Biodigester Program since 2005 and works with the Hivos Climate Fund for emissions reduction through biogas and renewable energy.

#### **4.3. Technical Service Delivery**

A number of environmental and conservation groups provide technical assistance to state and non-state actors. The groups include:

BirdLife International: BirdLife's regional program coordinates US\$9 Million *Critical Ecosystems Partnership Fund* (CEPF) for the Indo-Burmese biodiversity hotspot. This fund issues small to medium-sized grants in support of biodiversity conservation. In Cambodia, BirdLife supports a range of species-based conservation programs through international and local NGOs. For example, BirdLife granted US\$330,000 to the local NGO *Mlup Baitong and Wildfowl & Wetlands Trust* to fully establish and conserve Boeung Prek Lapouv and Kampong Trach Sarus Crane reserves. BirdLife administers US\$20,000 to build the capacity of *The Cambodian Institute for Research and Rural Development* (CIRD) to undertake conservation activities in Kampong Trach. BirdLife also supports conservation of endangered birds through other projects. It is trying to develop a REDD related strategy in support of the conservation of white-shouldered ibis in Stung Treng and Ratanakiri.

Conservation International (CI): In Cambodia, CI has focused on the Cardamom Mountains until recent years. The program supports protected area management objectives through on-site surveillance and law enforcement systems in the Central Cardamom Protected Forest. The Forests are threatened by illegal logging and hunting activities. CI trains staff of MOE and FA on patrolling and protected areas management. CI also supports a number of species based conservation programs in other landscapes in Cambodia.

Flora and Fauna International (FFI): FFI's Cardamom Mountain's program supports the government and helps local authorities and communities to conserve, protect forest and wildlife, and improve livelihoods by training them to develop environmentally-friendly agriculture and communal marketing strategies. FFI is implementing part of USAID/HARVEST's natural resource management program. As part of its work on Greenhouse gas (GHG) mitigation, FFI is undertaking a policy and legislative review of MOE functions, a carbon stock inventory, an opportunity costs analysis of alternative land use, and developing REDD and Payment for Ecosystem Services modules for the Royal University of

Phnom Penh (RUPP). FFI proposes to undertake commune land use planning exercises in five communes in Veal Veng district within Samkos Wildlife Sanctuary.

As mentioned, FFI is funded by the EU to work with MOE, the Royal University of Phnom Penh (RUPP), and the Learning Institute to draft and develop a Payment for Ecosystem Services policy for hydropower watershed areas in the Cardamom Mountains. FFI also works on capacity building of the RUPP to improve knowledge and skills on biodiversity conservation.

*The World Conservation Union (IUCN)*: IUCN is a unique global membership organization that supports conservation and sustainable development. Its members include national states and government agencies, along with international and local NGOs. U.S. government's State Department is an IUCN member, as is the RGC. In recent years, IUCN's Cambodian staff has focused on the Cambodian portion of IUCN's regional *Landscapes and Livelihoods Project*. This project offers support to protected area management and livelihoods development in the Peam Krasop Wildlife Sanctuary in Koh Kong, which features one of the largest remaining mangrove areas in the Gulf of Thailand. IUCN assisted MOE's General Department for Administration of Nature Conservation and Protection with the management zoning scheme for the sanctuary. This zoning scheme was approved by the governmental sub-decree on August 3, 2011 and is the first protected area zoning scheme to be approved by the RGC. Consequently, the General Department for Administration of Nature Conservation and Protection has requested IUCN to assist in zoning for Don Peng and Botum Sakor protected areas. IUCN also supports mangrove forest rehabilitation in the area and proposes to map, replant, and protect mangroves in Botum Sakor and in Kampot province.

In cooperation with the Climate Change Department and the Wetlands and Coastal Resources Department of the MOE, IUCN implements the "*Building Resilience to Climate Change Impacts*" in Kampot and Koh Kong provinces with EU funding from 2011-2014. The Swedish International Development Agency funds the "Mangroves for the Future" Project. The project is implemented in cooperation with MOE and focuses on raising awareness about mangroves in coastal provinces. IUCN also supports a regional awareness raising network in the Mekong River Basin.

*Center for People and Forests (RECOFTC)*: RECOFTC's Cambodian program helps local communities and the government legalize community forestry sites nationwide and aims to ensure their long-term economic viability. It serves as a civil society representative on the national REDD+ Task Force, the Technical Working Group for Forestry and the Environment, and the National Forest Program Task Force. RECOFTC is implementing three projects: (i) Enhancing Rural Livelihoods project (2011 – 2014), (ii) Manage our Forests (2009 – 2011), and (iii) the Prakas project (2008–2012). RECOFTC estimates it costs of US\$7,000 to set up a Community Forest site, excluding salaries of FA staff to facilitate the establishment process and providing legal documentation support.

*Wildlife Alliance (WA)*: Wildlife Alliance focuses on supporting the conservation of the forests and wildlife in the Southern Cardamoms Protected Forest and contiguous forest areas. It cooperates with FA, MOE, the Royal Cambodian Armed Forces, and provincial authorities in enforcing laws on forest protection and adopts a soft advocacy approach with senior government. Wildlife Alliance signed an MOU with the government to preserve road 48 in Koh Kong from any development. Recently, WA successfully lobbied the government to review and decline a proposed investment in titanium mining that would have had major impacts for forest conservation. Nevertheless, major challenges to forest conservation persist and include land encroachment and land grabbing, slash and burn farming, mining, hydropower development, illegal logging for luxury wood, ELCs for pulp and paper, Acacia and Eucalyptus plantation in Botum Sakor, a banana plantation in Sre Ambel district, and

sugar cane plantations in the Cardamom Mountains region. As part of its conservation strategy, WA has collaborated with ONF International to assess carbon stocks in the Southern Cardamom Mountains as the basis for developing a REDD strategy. Wildlife Alliance also implements an ecotourism project in Chi Phat district as part of a strategy to engage local villagers in wildlife conservation.

*Wildlife Conservation Society (WCS):* WCS focuses on developing and implementing wildlife conservation strategies for critically endangered wildlife. These strategies include protected area management, support for community based conservation initiatives and habitat management. WCS works closely with FA and MOE in the northern plains, Monduliri and Tonle Sap Landscapes. It has undertaken assessments of carbon stocks in Preah Vihear province in 2004 and 2010 in collaboration with FA/MAFF and GDANCP/MoE; and in Seima in Monduliri province in 2004 and 2008 in collaboration with FA. It facilitated indigenous community land registration processes in Monduliri and Ratanakiri provinces where MOI and MRD are involved. Many of these areas are subject to land grabbing, illegal logging ELCs, lack of boundary demarcation, poor law enforcement capacity, and limited coordination among relevant stakeholders care current major issue for forests. In Siema Biodiversity Conservation Area, WCS is actively engaged in supporting land titling for indigenous minorities. It is pursuing an establishment of a community commercial forest in Seima.

*Worldwide Fund for Nature (WWF):* WWF's Cambodia Program works with MOE and the FA on protected area management and wildlife conservation in the Eastern Plains Landscape. The result has led to substantive improvement in the work of protected area managers as well as improvement in establishing baselines for wildlife monitoring. WWF continues to support a *Provincial Conservation Planning Unit* in Monduliri that was previously established jointly by ADB's *Biodiversity Corridor Initiative* and WCS. This unit aims to facilitate the integration of conservation into the five-year provincial development plan. WWF supports community forests areas inside Monduliri Protection Forest and community protected area inside the Phnom Prich Wildlife Sanctuary. This includes some small "conservation concession" projects where communities are compensated US\$8/hectare to protect forests.

#### **4.4. Green Growth Initiative**

Cambodia is implementing a number of measures that are prerequisite to the development of a Low Emission Development Strategy (LEDS). As noted above, the *National Climate Change Committee (NCCC)* was established in 2006, and the *National Adaptation Program of Action for Addressing Climate Change (NAPA)* was approved in October 2006. The First *National Forum on Climate Change* was held October 19-21, 2009 in Phnom Penh and was chaired by the Prime Minister. The Second National Forum on Climate Change was held in October 2011.

##### *National Green Growth Roadmap, Strategy and Master Plan*

Cambodia is partnering with South Korea's Global Green Growth Institute (GGGI) to develop its green growth economic development plan, which aims to balance economic growth with climatic and environmental sustainability. Cambodia received technical assistance from the *United Nations Economic and Social Commission for Asia-Pacific (ESCAP)* and financial support from KOICA to develop the *National Green Growth Roadmap*. The Secretariat, was established and based at MoE and provides technical support to draft and develop the roadmap. A technical level inter-ministerial working group was established by the sub-decree. It consists of members from 20 line agencies and is chaired by the MOE.

The *National Green Growth Roadmap* was signed by Cambodia and South Korea's Global Green Growth Institute in January 2011. It provides a strategy and work program for the formulation of national policy and action for environmentally sustainable, low carbon economic growth, and development in Cambodia. Attached to the roadmap is a list of 40 "green development" project proposals proposed by different line ministries. To implement the roadmap in the future, Cambodia will need to (i) establish a *National Ministerial Green Growth Council*; (ii) conduct public awareness and consultation process to disseminate "greening the workplace" and "greening the home" educational materials; (iii) integrate eco-village or eco-city initiatives into the *National Strategic Development Plan*, (iv) establish a national strategy for greening industries based on resource efficiency including recycling, reduced consumption, and reuse strategies, and (v) develop stimulus measures for agriculture development, including index-based insurance schemes and micro-financing to increase resilience in rural communities.

An initial consultation workshop was held in Phnom Penh on September 19, 2011 to discuss the Global Green Growth Institute's work plan. Organized by the Green Growth Secretariat, the workshop considered a range of strategies and actions in support of green growth; including legal and economic policy frameworks, the role of small and medium business, waste management, green job creation, and a national strategy and plan for green growth. The event was attended by members of the inter-ministerial Green Growth technical working group and by Global Green Growth Institute representatives.

Cambodia's *National Strategy for Green Growth* will focus on foreign investment, green industries, and the improvement of the living environment and sanitation in support of building a low carbon society. A five-year *Green Growth Master Plan* will outline legal and institutional frameworks and will outline integrated, cost-effective and optimized policy option packages. The predicted outcome of the plan will be to pursue green growth at the national level; green growth regulations for industrial sector; promotion of green technology, energy, industry, and jobs; sectoral strategies for green growth; vulnerability and adaptive capacity to climate change, and capacity of local vicinities towards adopting and implementing green growth measures.

The Korean partners have proposed four pilot projects. The first project is the development of a National Strategy for Green Growth in Cambodia Project. The first phase will focus on an analysis of the situation and an establishment of a national committee on green growth. The second phase of the project is to develop Cambodia's national strategy and a five-year master plan for green growth. A third phase is an implementation through a bottom-up approach involving local agencies and communities, line ministries, national committee, and the Prime Minister's Office.

The second project is the Greening Local Communities by Encouraging Appropriate Technology Adoption. The focus of this project is on the development of small and medium enterprises for developing appropriate technologies such as solar cookers and waste incinerators. The third project involves the sustainable growth in waste management fields for villages and improvement of closed landfill sites. The fourth project is the Green Growth Job Creation and Income Growth. This project emphasizes green tourism development (eco-tourism), training of human resources for tourism industry, and training of experts for nursing and public health fields.

#### *Clean Development Mechanism (CDM)*

In line with the UN Framework Convention on Climate Change and the Kyoto Protocol, the Tokyo-based Institute for Global Environmental Study assists MOE's *Climate Change Department* to build capacity to address climate change and reduce greenhouse gas emissions through the Clean Development Mechanism (CDM). Cambodia is in the process

of learning and adapting experiences and lessons learned from other countries over the implementation of CDM projects in order to develop its own approval procedures. Capacity building to further develop and implement CDM projects is needed. Cambodia needs to improve coordination and communication among relevant stakeholders to share experience and information.

Cambodia has registered four CDM projects at the CDM Executive Board: (i) a rice husk biomass cogeneration; (ii) a biogas project at tapioca starch factory; (iii) a pig farm methane recovery and utilization; and (iv) a cement waste heat power generation project. Three additional projects were approved by Cambodia's Designated National Authority (DNA) and are under validation. These projects include one relating to hydropower and two relating to biogas.



## 5. ISSUES AND OPPORTUNITIES FOR SUSTAINABLE FOREST MANAGEMENT AND REDD+

### 5.1. Key Drivers of Forest Loss and Degradation

Since the early part of the 20<sup>th</sup> Century until the present, the nature of drivers of forest cover change and degradation has been evolving.

#### Historical Perspective

Land clearance, logging, and fuel wood collection have been identified as the principle causes of forest loss in Cambodia since the early 20<sup>th</sup> Century (e.g. Bejaud 1932). It is evident the expansion of the population to forested areas during this time was limited to the recent alluvium and some smaller areas of fertile soils, as well as limited by the *productivity of existing agricultural technologies*.

This trend of expansion appears to have been substantially replaced in the middle part of the 20<sup>th</sup> Century when commercial logging became a reality. At this time, the population attained a level of about six million, and land tenure issues were becoming politicized. Forest loss was therefore, the result of the interplay between increasing commercial production and demographically related trends including demands for both fuel wood and agricultural land.

Subsequent to the onset of war in the 1970s and the ensuing isolation, commercial exploitation of forests was limited, and the population generally concentrated in agricultural areas. This was likely accompanied by deforestation at the margins of the agricultural belt associated with subsistence use, except for relatively short periods when political regimes required people to move to forest areas.

During the post-war period (1991 – Present), deforestation continued in the forest margins until the mid to late 1990s, though extensive unregulated commercial exploitation also commenced during this time. Following the advent of greater political stability in the mid to late 1990s, the pattern of deforestation shifted to one associated with a range of differing scenarios in differing parts of the country. The patterns of deforestation include:

- Deciduous and semi-evergreen forests of far north-western Cambodia.
- Semi-evergreen and evergreen forests of the basaltic soils in Ratanakiri.
- Evergreen forests along the newly repaired roads in the coastal hinterland.
- Evergreen forests associated with areas of good soil along national route #4.
- Deciduous forests across northern and north-eastern Cambodia<sup>23</sup>.
- Flooded forests associated with Tonle Sap Lake.<sup>24</sup>

This was accompanied by further widespread and increasingly severe degradation of the forest resources. Currently, it is reasonable to state that “less disturbed” forest is approximately 25 to 30 percent, while primary forest area amounts for a lower percentage.

#### Current Situation

Current drivers of forest loss and degradation are described in Cambodia’s recently developed Reducing Emissions from Deforestation and Forest Degradation (REDD) Readiness Plan as follows:

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<sup>23</sup> Some of this apparent change probably reflects improvements in the mapping of natural grasslands.

<sup>24</sup> These apparent changes may also partially reflect improvements in the mapping of natural grasslands

Table 6: Drivers of deforestation and degradation in Cambodia

	Within the forest sector	Outside the forest sector
<b>Direct</b>	<ul style="list-style-type: none"> <li>• Unsustainable logging</li> <li>• Fire</li> <li>• Unsustainable wood fuel collection</li> </ul>	<ul style="list-style-type: none"> <li>• Clearance for agriculture</li> <li>• Expansion of settlements</li> <li>• Infrastructure development</li> </ul>
<b>Indirect</b>	<ul style="list-style-type: none"> <li>• Lack of demarcation of forest areas</li> <li>• Inadequate forest law enforcement</li> <li>• Low institutional capacity and weak policy implementation</li> <li>• Demand for wood energy for domestic and industrial uses</li> <li>• Low efficiency of wood conversion and use for construction, energy production, etc.</li> <li>• Lack of incentives promoting sustainable management of forests</li> <li>• Lack of finance to support sustainable forest management activities by line agencies, local authorities, and local communities</li> <li>• Lack of sustainable or alternative supply of wood and timber, including for wood energy to meet demand</li> <li>• Weak forest sector governance               <ul style="list-style-type: none"> <li>- Low levels of stakeholder participation and involvement</li> <li>- Lack of transparency and accountability</li> <li>- Lack of assessment of social and environmental impacts</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Population increase</li> <li>• Poverty</li> <li>• Rising incomes and demands for resources</li> <li>• Increasing accessibility of forest areas</li> <li>• Low agricultural yields</li> <li>• Migration into forest areas</li> <li>• New settlements, including in border areas</li> <li>• Large-scale agro-industrial developments (including economic and social land concessions and other concessions)</li> <li>• Land speculation</li> <li>• Regional demand for resources</li> <li>• Poor ESIA regulations and lack of implementation</li> <li>• Governance               <ul style="list-style-type: none"> <li>- Weak forestland tenure – tenure is weakest in forests and other areas outside residential or farming zones</li> <li>- Weak enforcement of the law</li> <li>- Limited implementation of land registration (private and state)</li> <li>- Lack of a fair and transparent conflict resolution mechanisms</li> <li>- Insufficient implementation of land-use planning</li> <li>- Overlapping/ unclear jurisdictions</li> </ul> </li> <li>• Social norms (claiming land through utilization)</li> <li>• Economic benefits provided by sustainable management of forests at the national level often appear lower than alternative land uses</li> <li>• Opportunity costs of sustainable management of forest at the local level</li> <li>• Local awareness of environmental roles of forest</li> </ul>

Contextual and Emerging Issues

While the list of drivers developed in the REDD+ Readiness Plan is extensive, a number of key issues are not adequately emphasized.

Contextual issues include Cambodia’s high rate of economic growth and high inflation rate, which are problematic for forest management. Much of the current economic growth involves agricultural activities associated with forest clearance, however, the benefits of this growth are not evenly distributed. Many rural residents who are disadvantaged by this inequity face the brunt of the burden resulting from the nation’s high inflation rate, thereby exacerbating their poverty and obliging many of them to engage in further destruction of

forest areas. In addition, the high domestic demand for timber to supply the rapidly growing construction industry is placing demands on timber supply.

There is extensive migration from one part of the country to another in search of economic opportunity. Many people are moving out of densely populated agrarian provinces (such as Takeo and Kampong Cham) to seek new or additional lands in more heavily forested provinces. These people also include those displaced by land conflicts and those who have voluntarily migrated who are seeking to supplement their family income by relocating to other provinces.

A number of governance issues ensure the status quo is not amenable to sustainable forest management. This includes the slow pace and inadequate development and implementation of a spatial planning policy. In spite of recent efforts in the development of land-use policy, the Commune Land Use Planning's role is confined to conflict resolution rather than land use planning and more importantly, land use allocations. Cambodia has yet to develop a formal and transparent process for land use planning and allocation that would respond to the Royal Government of Cambodia's (RGC) various policy and legal frameworks. This allows the "tragedy of the commons" scenario to persist as the forest landscape further degrades. While recent direction from the Prime Minister to require the harmonization of the *Forestry Law* and the *Organic Law* is welcome, it appears likely that law enforcement at the local level will remain a low priority.

A number of issues contribute to forest degradation by maintaining the *status quo*. Grey area in policy provides opportunities for some actors to misrepresent the impacts their actions have on forest areas. The Forestry Administration considers plantations to count as forests within Cambodia's current Millennium Development Goal (MDG) of 60 percent forest cover. This appears to be in conflict with another national goal for promoting agro-industries. The MDG of 60 percent forest cover provides a perverse incentive for forest conversion, as it maintains a "grey area" where policies are not harmonized, allowing the belief that Cambodia cannot maintain high levels of *natural* forest cover.

Occasionally, a low premium is placed on the value of forests and this leads to the under-estimation of the economic values of forests. For example, recent increases in the conversion of forest to cassava across Cambodia are unlikely to be competitive with the price of forest carbon. This indicates a poor understanding of the nature and value of environmental services and highlights the issues that cost-benefit analyses of land use options are lacking. Nevertheless, it is clear that carbon prices on the voluntary carbon market are not necessarily competitive with opportunity costs of commercial land use.

There are a number of emerging issues. Firstly, the rapidly growing economies of ASEAN and China will place additional demands on the region's natural resources. For instance, it is estimated in 10 years, China will have 200 million residents in the middle class who will be importing goods.

Secondly, commercial trade in timber products entails considerable risk in the absence of measures that ensure sustainable forest management practices are adopted, monitored, and verified. Prospects for resuming timber production on a sustainable basis will be compromised by the degraded state of Cambodia's forest area in which the most valuable species have been over harvested over extensive areas. Indeed, sustained high valued timber yields are difficult to achieve even within a "good governance scenario." For example, while the *Board of Inquiry into the Victorian Timber Industry* in Australia (Ferguson 1985) resulted in reform of the sector, it became apparent less than 20 years into the 30-year logging cycle, that the production forests could only supply between 30 and 70 percent of the projected yields (Ferguson *pers. com.*).

Thirdly, agricultural development in areas adjacent to forest areas is considered as a core strategy in efforts to reduce forest dependency and destruction. Nevertheless, the improving levels of agricultural productivity also pose additional threat to forest areas. As agricultural productivity increases, the opportunity costs of agricultural land use will rise, posing additional incentives for forest conversion.

A final issue could be additional pressure on Cambodia's land and forest resources due to changes in the Mekong River Delta in southern Vietnam and south-east Cambodia resulting from the impact of climate change. The low lying delta is susceptible to storm surge (and possible sea level rise) associated with increasingly unstable weather patterns that will result in increasing salination of the delta's soils (Crocker 1962).

## **5.2. Vulnerability of Existing Sector Reforms and Initiatives**

Whilst there have been substantive reforms since the Independent Multi-stakeholder Forest Sector Review in 2004, many of these reforms are either policy or paper based and the gains made remain vulnerable. This is in part due to the challenges associated with developing successful approaches to resource management that can be scalable even when the threats to forest areas discussed above remain or intensify. Of equal importance are the constraints upon the design of programs and the continuity, consistency, and quality of development assistance.

Current strategies in the forest sector emphasize the *REDD+ Roadmap*, the *National Forest Program (NFP)*, the *National Protected Areas Strategic Management Plan (NPASMP)*, and community forestry (CF). *Cambodia REDD+ Roadmap* has been acknowledged as a worthy document with many strengths. Nevertheless, it relies on an effective *NFP*, *NPASMP* and, to a lesser extent, the *National Fisheries Action Plan* as implementation strategies. Even the Forest Carbon Partnership Facility's resolution requires a number of revisions before they recommend entering into a Readiness Preparation grant agreement with United Nations Development Program (UNDP).<sup>25</sup>

Much has been said about the relative success of community forestry approaches and the RGC's target of formalizing two million hectares under these arrangements. Even if these were to be attained, this would bring a small proportion of Cambodia's forests under sustainable forest management arrangements. It is therefore critical the *National Forest Program* and *National Protected Areas Strategic Management Plan* attain high levels of effectiveness in promoting sustainable forest management. While the *NFP* has been drafted, the *NPASMP* has not. However, the Ministry of Environment (MOE) has recently expressed an interest to develop a *NPASMP*.

Furthermore, the *NFP* was not developed with an adequate reference to REDD/REDD+ as a greenhouse gas mitigation strategy. The 20-year time frame contrasts with the 10-year time frame for the *National Fisheries Action Plan (NFAP)*.

In addition to these programmatic considerations, the field realities discussed elsewhere in this report contribute to the vulnerability and effective implementation of existing reforms. This draws attention to the consistency of policy interventions and quality of technical assistance. Much of the forest conservation work that has been implemented in field locations reflects the priorities of international conservation organizations.

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<sup>25</sup> During the course of this assessment, UNDP advised the assessment team that a revised document was not yet available.

### **5.3. Voice and Constituency Building**

Limited technical capacity is a constraint to effective forestry governance sector. There are many small communities whose land and forest are being threatened by land concessions, migrations, and other drivers. Empowering these communities was given attention through the community based and benefits sharing approach, i.e. Community Forestry.<sup>26</sup>

There is strong evidence that once legalized, these communities can reduce the risks of their land being taken away by outsiders, help prevent illegal and destructive activities, and promote more income generation from non-timber forest products.<sup>27</sup> However, the legalization process has been slow and some communities may lose their land and forest areas before the formal registration is completed. Unfortunately, even with formally registered community forests, deforestation and land capture still occurred and management committees and local authorities could dispute not this issue.

This indicates that while the legalization of Community Forests is helpful, there are areas to be improved upon if communities are to be empowered and the power imbalance is to be reduced. The first is to strengthen the capacity of the communities themselves. Mostly, it is noted, only a few people in the CF are literate and some communities suffer from their own internal conflicts. The governance of the CF management groups should be strengthened.

An expectation exists suggesting that local authorities, especially sub-national administration elected councils, should help these communities. Thus far, there have not been clear roles for these local authorities to work with to provide support to the CFs or Community Fisheries (CFi). Instead, they exist more as numerous standalone community-based organizations operating without strong connections to the government hierarchy of power. This suggests the current community actions are not only fragmented, but also not well integrated into and represented by relevant sub-national administration authorities who are a part of the current power structure.

Sub-national administration authorities, through the councils at various tiers, should be the representation of the people. However, in practice, this has not happened. This may partly be due to self-interest and political/institutional constraints which will be discussed further below. It may also partly be due to a lack of information sharing and consultation especially between the national level and sub-national administrations and among actors at the sub-national administration. For instance, it was found commune and district authorities are not given, nor did they persistently ask for, proper documentation regarding Economic Land Concessions (ELC), mining, etc. This might be a factor forcing the authorities to follow the orders from the higher level, i.e. whoever issues the license for the ELCs. Another example is although provincial and district councils are supposed to be representative of each sub-national administration tier, they are not usually given a copy of supporting documentation for ELCs, mining, etc. So far, it is the governor and respective line department who usually have a copy.<sup>28</sup> The respective roles of the Councils and the governors are discussed in section 5.4.

The channel for information flow from the sub-national administration back to the central government is absent. For instance, there have been cases where the central government approved ELCs and Social Land Concessions (SLC) on the same lands, in addition the

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<sup>26</sup> World Bank (2004). Cambodia at the crossroads - strengthening accountability to reduce poverty. Phnom Penh, Cambodia.

<sup>27</sup> Blomley, T., T. Prom, et al. (2010). "Review of Community Forestry and Community Fisheries in Cambodia."; Meeting with the Phnong CF in Seima.

<sup>28</sup> MKR trip

central government agencies approved concessions on villagers' plantation because they thought that piece of land was forest.<sup>29</sup> These problems should have been solved assuming sufficient information from the ground was provided. Limited bottom-up information sharing proves to be a key problem especially for monitoring of ELCs. Some companies operate as if limited information is provided and accessible. Others companies show more interested in the concession but only for land speculation rather than agricultural development.<sup>30</sup>

The lack of information sharing and dialogue is particularly a concern at the central government level which is where most of the decisions regarding ELCs are made. For instance, while there are sub-decrees about ELCs, it is still not clear what longer term policy direction, cost-benefit calculation criteria, or systematic information flow the central government uses to decide whether a certain piece of land should be converted into ELCs. For instance, the belief that those ELCs are good because it will bring more capital and technologies into the country<sup>31</sup> have not been proved at the implementation level. Plus, even if these beliefs are truly held by higher policy makers, there is no sufficient consideration such as on land use allocation, monitoring mechanisms over ELCs, migration, labor issues, natural resource conservation, and proper dialogue for these issues to be raised.

Government officials at different levels whose jobs involve making decisions about development policies, ELCs, land management, environment, etc., should be the prime target for more engagement and dialogue regarding forestry and natural resource management. As discussed in the recommendations, there is also the need to build broader based constituencies. The voices of the victimized rural or indigenous communities whose lands have been grabbed and those of NGOs supporting them should be heard. Yet, other constituencies should also be built, including the rural population whose lives do not depend directly on forest but whose interests in natural protection can be built and thus form another group of voice.

Youth groups are another important constituency. While youth are vulnerable, they have considerable potential to revitalize the culture due to their large population. With the current demographic change, youth will become a new social force whose interest and concerns need to be addressed by the government. The youth tend to be more modernized, more literate, and more familiar with modern technology (such as telephone and other IT-related media), therefore they can be made more aware about the importance of having forest and how to protect it. There is substantial potential for the development of both rural and urban youth constituencies for sustainable forest management.

#### **5.4. Decentralization and De-concentration**

Section 5.4 argues there are both constraints and opportunities from decentralization and de-concentration (D&D) for the forestry sector. These issues are by nature challenging and should be recognized, resulting in opportunities sought to find feasible ground for intervention.

##### Limitations for the Forestry Sector

The D&D process in Cambodia is slow for at least two reasons. First, there is a need for capacity building and gradual changes in the mindset of many stakeholders at both the national and sub-national administration levels. Second, D&D is essentially about re-allocation of resources and powers among different actors with various interests regarding

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<sup>30</sup> MKR trip; others

<sup>31</sup> ELCs websites: <http://www.elc.maff.gov.kh/en/>

the reform. By its nature, this is a gradual process of negotiation, compromising, and strategic sequencing.

While D&D has been discussed recently, especially in relation to functional assignments to sub-national administrations, natural resource management, including forestry, has not been given high priority. The focus is still on how to make D&D better linked and how to promote social services especially health and education sectors. These two sectors are considered a priority for local development and have experienced extensive de-concentration. This selection can also be explained by their less-sensitive nature, i.e. clear and appealing functions with less competing interests trying to seek rents from the two sectors.

The level of sector de-concentration is a key factor determining the speed of linking a sector to D&D. The natural resource management sector in Cambodia, especially forestry and fishery, are among the least de-concentrated. In the last decade, with the creation of Forestry Administration (FA) and Fisheries Administration (FiA), these sectors have been re-centralized and operated more independently from Ministry of Agriculture, Forestry and Fisheries (MAFF). The FA's management structure - divided into inspectorate, cantonment, *sangkat*, and triage - does not coincide with sub-national administration administrative boundaries - is another feature that makes this sector even less harmonized with D&D.

As their decentralization policies and initiatives, the FA and the FiA have established CF and CFi). These community-based natural resource management areas were conceived and implemented within the vertical line of the FA and the FiA. They have limited interaction and synergy with the mainstream sub-national D&D reforms. The roles of the commune and other levels of sub-national administration in supporting these community-based organizations have also been limited. Support from Danish International Development Agency's (DANIDA) projects has attempted to create more engagement from commune councils and district administration in natural resource management (including forestry and fisheries).<sup>32</sup>

In the last five years or so, there have been cases of people protesting about their lands and forest being encroached upon by higher authority. In these events, the roles of various levels of sub-national administration have been mixed. There are cases where commune authorities, together with armed force (military, military police, or police), tried to crack down on community protests. Many of these stories have been reported in newspapers.

However, there are also stories which are infrequently mentioned in the media, where village chiefs, commune chiefs, or districts helping communities are occasionally at their own personal security risks.<sup>33</sup>

On another level, institutional and political constraints prevent sub-national administration authorities from being able to represent local voices in relation to natural resource management and conflicts. First, the *Law on Management and Administration of Commune/Sangkats* (2001) was explicit that the commune has no authority over natural resource management including forests<sup>34</sup> but does have responsibilities to protect the forest.<sup>35</sup> This law, together with the *Forestry Law* (2002), makes clear only the FA has a jurisdiction over forests. This indicates a contradiction in the current 2001 Commune Law. This contradiction is one specific area that needs to be addressed once forestry and D&D are aligned together.

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<sup>32</sup> Interviews with NCDD NRM focal person, September 20, 2011

<sup>33</sup> In Kampong Speu See Chrac (2010) Still losing ground: Forced evictions and intimidation in Cambodia).

<sup>34</sup> Article 45: Commune/Sangkat administration will have no power to decide on the following affairs, the first of which is forestry.

<sup>35</sup> Article 43: Communes/sangkats will have duties to 'Protect and conserve the environment, natural resources, and national culture and heritage'.

At the district and provincial level, the roles of the *Committee for Land Conflict Resolution* in relation to conflicts over forestland have been very limited. The commune has roles in land conflict resolution too, but so far it has been working only on small-scale conflicts, i.e. between households.

Another constraint on the sub-national administration, especially at the district and provincial level, has less to do with external constraints, but the lack of understanding about natural resource conservation versus the new kind of 'development' which comes in form of rubber plantation, ELCs, new roads, markets, etc. The understanding of how best to benefit from these opportunities is dominated by short-term gain considerations. This may lead to the inability to recognize short-term and medium-term benefits (e.g. how best to establish and benefit from eco-tourism, new agricultural opportunities, etc.), as well as lead to longer-term negative consequences of some development activities.

### Opportunities for the Forestry Sector

The future provides more opportunities from D&D in the Forestry Sector than in the past. This is reflected through political incentives and the legal and policy framework published in the *Organic Law* and *National Program for Sub-National Democratic Development*.

First, D&D is one of the few reforms that moves forward however it is at an unhurried pace. Progressing against a very highly centralized political and administrative system, D&D has developed at a steady rate since it was first introduced as the Seila development program in 1996 to commune elections in 2002 and 2007. D&D has led to not just the adoption of the *Organic Law*, but also the district and provincial elections in 2009 as well as to the National Program for Sub-National Democratic Development and IP3 in 2010. Following these key policies, the *Law on Sub-National Finance* was established with the District/Municipality Fund (DMF), which allocates about \$44,000 per district per year, is starting implementation from 2012.

Regarding natural resource management, the Prime Minister recently ordered the revision of the *Forestry Law* and the *Fishery Law* to align with *Organic Law*. For the forestry sector, the revision may lead to a reconsideration of key aspects of current forestry governance including the re-alignment of the FA boundary with that of the administrative boundary. This adjustment, if in accordance with *Organic Law* provisions, will allow more horizontal coordination among different line departments (FA, provincial department of environment, provincial department of industry and mine, provincial department of tourism, etc.). It will also allow more roles of respective sub-national administration councils in the functioning of these line agencies through more horizontal integration of planning and dialogue within the councils and boards of governors.<sup>36</sup>

Second, at the local level, commune councils are the best local institutions operating within the existing power structure (both the state and the party). The councils can represent the voices of the people either through their planning or by providing an institute where people are welcome. There are reputable commune chiefs that are willing to stand on peoples' sides.<sup>37</sup> In addition, there are councilors (many of whom are also Cambodian People's Party (CPP) who may disagree with the chiefs on land conflict issues.

More opportunities are being developed to increase the voice of the community through the councils. In addition, for the purpose of engaging with non-state actors, local participatory

<sup>36</sup> Meeting with NCDD NRM focal person, September 20, 2011

<sup>37</sup> Amlaing commune See Chrac (2010) Still losing ground: Forced evictions and intimidation in Cambodia; MKR interviews in Busra.



planning has already laid out institutional space and existing practices for NGOs to integrate planning with that of the commune. This political space has not been well exploited as many NGOs are devoting more time to their projects than to ensure partnership with the commune. Lately, more initiatives have been presented to raise awareness and participation from NGOs about D&D, especially at the district and provincial level.<sup>38</sup> With high expectation within the D&D framework, NGOs will act as the key link between the sub-national administration and local people, e.g. by having NGOs to encourage more people to use accountability box and citizen's rating report cards as a way to make their voices heard at sub-national administration councils.<sup>39</sup>

Moreover, there is evidence that community forestry performance will improve if more involvement and support from commune councils was offered.<sup>40</sup> This is further confirmed by the finding in other studies that partnership forestry can strengthen communities for natural resource management purposes.<sup>41</sup> Partnership forestry is being piloted in one commune in Kratie where the commune councils are the management entities, as specified in the Community Forestry guidelines and *prakas*.

The newly elected *councils* (not just the governors) can also provide another political space where engagement and participation from non-state actors can be integrated.<sup>42</sup> As mentioned earlier, the *Organic Law*, the *National Program for Sub-National Democratic Development*, and the *Organic Law Implementation Plan 2011-2013* provides strong legal foundation for voice, participation, and horizontal accountability and planning. The district and provincial councils, unlike some central agencies, may express more interest in any support that can help them become more engaged in development projects and dialogue. Since their establishment in 2009, the councils have not performed due to lack of funding. As such, any support is encouraged to promote future growth.

With external support, the councils can exercise their rights to choose to create appropriate committees for specific problems including natural resource management. This will constitute a new space for dialogue and sharing of information therefore, the councils can start to exert more of their legal authorities vis-à-vis the Governors' actions, thereby allowing them to be more engaged.

At the provincial and district levels, the current law and policies also allow for more engagement from NGOs and non-state actors in the business of the councils. So far, that provision of the law has not been practiced. However, the National Committee for Sub-National Democratic Development (NP-SNDD) is trying to encourage more engagement from NGOs, especially the service delivery NGOs. For instance, the government encourages NGOs to increase their involvement and support with the districts, even in forms of co-funding on key social services. This interaction could promote the discussion of delivery of natural resource management.

Once established, the *National League for Sub-National Administration* can serve as another space in which collective voices from provincial, district, and communes can be effectively

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<sup>38</sup> PACT and VBNK (2010). "Raising Awareness of Civil Society of the National Program for Sub National Democratic Development (NP-SNDD)".

<sup>39</sup> CCSP (2010). Capacity Building of NGO and Raising Awareness of Commune/District Councils on the Citizens' Rating Report; Women's Media Centre of Cambodia (2010). NGO Raising Awareness on Accountability Boxes.

<sup>40</sup> Danida/DFID/NZAID (2010). "A study of lesson learned from the Civil Society and Pro-Poor Markets Component (CSPPM) of the Natural-Resource Management and Livelihood Programme (NRMLP)."

<sup>41</sup> Bombley et al 2010

<sup>42</sup> Since 2009, the D&D at district and provincial level has not produced much result. Yet, this lack of progress in the reform process should not be interpreted as the absence of potential roles nor the lack of willingness of these two levels (especially the councils) to get involved in local development, including those related to NRM. Instead, the two years since 2009 should be seen as 'transitional years' when the councils were not given chance to prepare development/ investment plans..

presented to the central level. The experience from the *National League of the Commune/Sangkat* has been encouraging. Through this forum, commune councils were able to provide substantial support to address problems including difficulties. More recently, the League prepared their collective proposals regarding their future functions.<sup>43</sup>

In addition to these systemic changes, there are also changes in the human element. The younger generations are replacing those at the sub-national administrations, including provincial governors, district governors, and advisors and chiefs of provincial and district administrations. Although there is no guarantee the younger generation of officials will be as passionate about the people and forest as the departing officials, the younger generation tends to be more skillful and development-oriented as opposed to security-oriented. Given their already high base educational background, it may require the younger generation less time for capacity building and operationalizing new ideas.

Another opportunity is to expand on existing policies that seek to support the roles of sub-national administration in natural resource management. For instance, the first draft of the *Spatial Planning Policy* includes some general principles that link district and provincial land use planning with the *Commune Land Use Plan* (CLUP) with the land use plans of central agencies including the Forestry Administration and the General Department for the Administration of Nature Conservation and Protection. This should be seen as an opportunity to better align natural resource management policy with decentralization.

### **5.5. REDD Related Monitoring, Reporting and Verification**

Forest resource assessment and inventory for the establishment of greenhouse gas emission baselines is a problematic task due to the lack of adequate and ecological sensible forest typology; and the difficulties in assessing forest degradation over large areas. Ground-truthing of forest cover maps is essential to develop a valid forest typology as a prerequisite to developing adequate forest cover maps, modeling of forest quality and assessing regenerative potential prior to the establishment of carbon stock estimates and emission baselines.

The use of satellite images in remote sensing and GIS applications to assess forest cover, forest cover changes, and forest degradation is required. This is essential for the development and management of transparent and accountable monitoring systems for law enforcement officers. The use of satellite imagery will involve the support for enforcement activities concerning trans-boundary leakage, forest estate boundary demarcation, as well as support for effective law implementation, punitive systems, and measures.

Currently, mandates and existing capacities for undertaking monitoring, reporting, and verification are dispersed across varying institutions including the FA, the FiA, the MOE, the Ministry of the Interior's National Committee on Sub-National Democratic Development (NCDD), and the Ministry of Land Management, Urban Planning and Construction (MLMUPC). Cooperation with and transparency from other sectors such as mining and public works is also necessary. Efforts are needed to rationalize and coordinate these roles in support of a viable investment strategy. Reporting functions are also important. The National Climate Change Committee (NCCC) serves as the agency responsible for climate change policy and is chaired by the MOE. The MOE is, in turn, responsible for reporting to the UN Framework Convention on Climate Change (Figure 6). The MOE may assume an oversight role for a national REDD+ program in support of ensuring a separation of

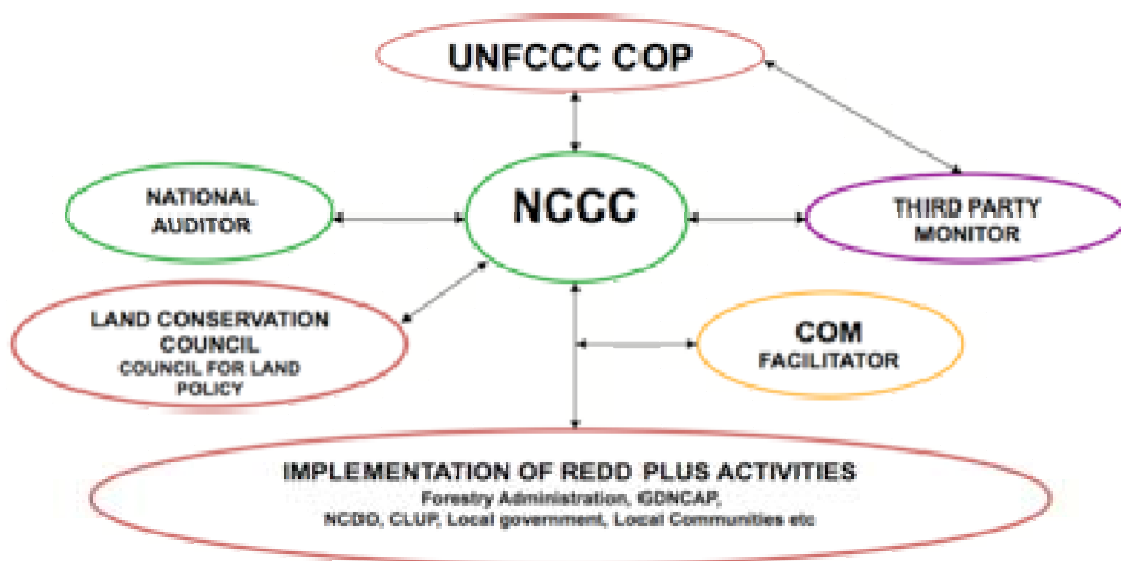
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<sup>43</sup> Flam and Pak (2010) Option paper for the National League of Commune/Sangkat Councils

implementation and oversight roles, as well as to ensure consistency in national reporting arrangements with other sectors.

While line agencies such as the FA, the General Department for Administration of Nature Conservation and Protection, and the MLMUPC have technical roles as coordinators of REDD+ activities and as service providers (e.g. resource management, law enforcement, support to communities), decentralized structures will be required for implementation. The role of village, commune, and district level institutions as a basis for REDD+ implementation can build on existing capacities (NCDD), Commune Land Use Planning, community protected areas and community forests, etc.). This will enable the use of established administrative systems to ensure interactive engagement at the local level, to address problems rapidly and issue regular visible payments.

Figure 6: Potential functional relationships in support of a national REDD+ program



Finally, the UN Framework Convention on Climate Change requires independent third party monitoring to review program performance and governance. This should be independent from both government and program implementation and provided with a strong mandate. There would be some merit in having a focal point for REDD+ at the *Council of Ministers*, to ensure effective communications and facilitate implementation of decisions. A national auditor would assist the NCC in assessing program implementation for REDD and other sectors with particular reference to program effectiveness, the efficiency of service delivery, benefit distribution, and financial controls.

There are a number of opportunities for supporting a robust national monitoring, reporting, and verification (MRV) framework, and capacity. These include institutional analyses, MRV trainings, the development of resource inventories, and statements and emissions baseline estimates. Food and Agriculture Organization (FAO) and JICA plan to support the MRV framework in Cambodia and have indicated additional assistance is required.

Cross-sector analyses and related capacity building is also required. These may include studies on the level and implications of migration, military structure and roles, and valuation of environmental services and co-benefits (carbon, water production and use, social inclusion and cohesion, biodiversity, forest products, good local governance etc.). Cost-benefit

analyses of management options may also be part of the studies which could include one of the following: REDD+, conservation, community forestry, protected areas, timber exploitation, or the efficient and cost effective delivery of various services.

### **5.6. Current National Level Forest Inventory System**

The current national forest inventory system is relatively limited considering aspects of Cambodia's flora were the subject of considerable work, primarily in the first half of the twentieth century. In the past, methodology for assessing forest cover relied on aerial photographs. Currently, methodology relies on the visual inspection of satellite images for assessing forest cover (FA 2002, 2006, and 2010). The assessor places a half-hectare grid over the imagery and inspects each unit before allocating it to a forest type and cover class. While a substantial amount of forest assessment has been done in this manner, there are challenges in interpreting the forest type. This is due to the broad nature of the forest typology used in the analysis as well as the difficulty in properly interpreting degraded forest areas.

The significance of the forest typology issues is illustrated by the comparison of two recent forest assessments described above in section 2.1. Different typologies give assorted views of the **nature** of Cambodia's forests that have far reaching implications for the estimation of carbon stocks and the identification of conservation, rehabilitation, and sustainable use strategies. Forest assessments based on different forest typologies will result in different classifications and area statements of their constituent forest units. Available information indicates each of these forest types differ in terms of standing volume and growth rates. Table 7 identifies the principal correlations between the forests assessments provided by the Biodiversity and Protected Areas Management Project (2007) and the FA (2002) on the basis of their vegetation structure.

Key points to be taken from this comparison are:

- The level of concordance between these classifications is poor for those forest types of key economic potential, i.e., evergreen and semi-evergreen formations.
- The FA's evergreen forest category encompasses a wide array of formations from very humid and humid environments at both low and medium elevation.
- Similarly, the FA's semi-evergreen forest category encompasses an array of formations from humid environments at both low and medium elevation.
- There is confusion concerning the extent to which forest formations within the humid bio-climate, at both low and medium elevations, are deciduous. While Blasco et.al (1996) considers they are all deciduous to some degree, i.e. semi-deciduous, the FA considers the bulk of the larger forests are evergreen though other semi-evergreen (partially deciduous) forests are also present. Other evidence implies much of these semi-evergreen forests are in fact mixed deciduous forests.
- The FA's deciduous forest category varies in its structure due to degradation and the formation of mosaics with other forests.

The inclusion of non-forest across a wide range of formations likely reflects that substantial areas of the sub-humid and edaphic formations have been cleared in recent years as well as improved mapping of grasslands within deciduous forest areas. The major "Other Formations" are essentially agricultural.

Table 7: Comparison of forest typologies used in different assessments.

BPAMP 2007			FA 2002, 2006 & 2010				
GENERAL ECOLOGY		VEGETATION FORMATION	EF	SEF	DF	OF	NF
VERY HUMID	Low Elevation	Dense Evergreen Forest					
	Medium Elevation	Dense Evergreen Forest					
HUMID	Low Elevation	Dense semi-deciduous Forest					
		Dense forest/secondary vegetation mosaic (dense forest predominant)					
		Dense forest/secondary vegetation mosaic (secondary vegetation predominant)					
		Savannah					
	Medium Elevation	Dense semi-deciduous Forest					
SUB-HUMID FORMATIONS		Mixed Deciduous Forest					
		Woodland with <i>Dipterocarpaceae</i>					
		Degraded Woodland with crops					
		Dense Thicket					
EDAPHIC FORMATIONS		Swampy degraded plant communities (flooded forests)					
		Herbaceous hydromorphic types					
OTHER FORMATIONS		Mosaic of crops and degraded vegetation					
		Paddy fields					
		Paddy fields with <i>Borassus flabellifer</i>					

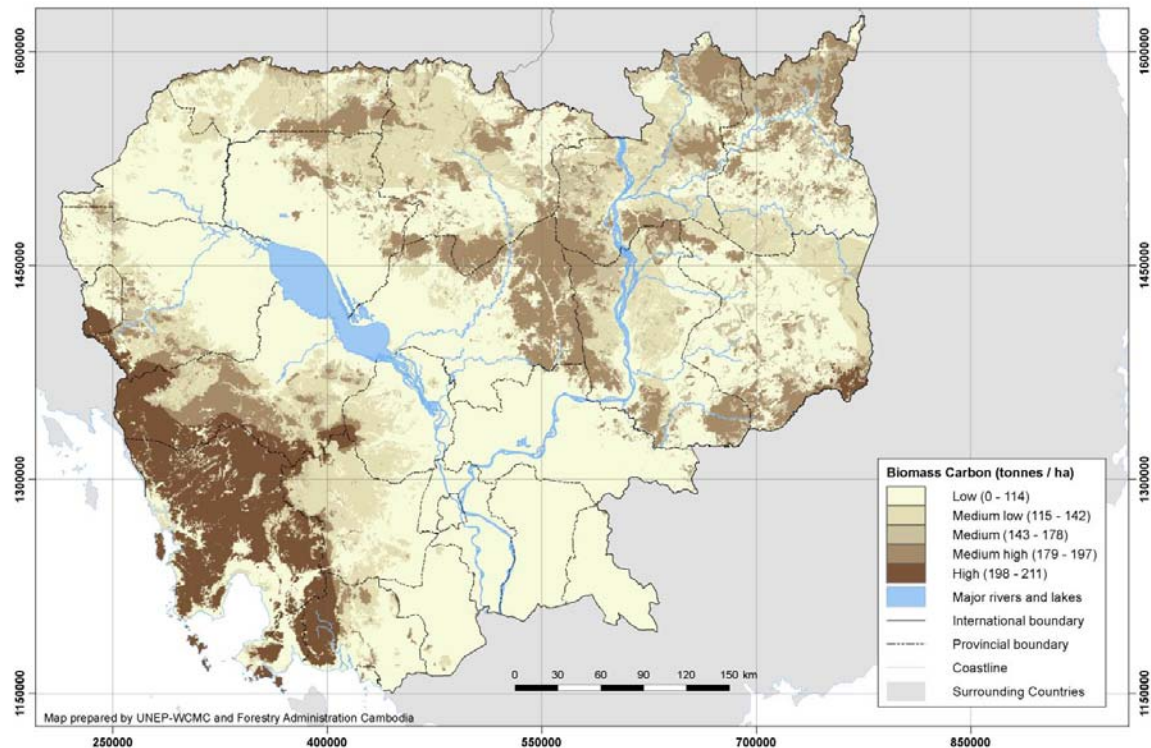
Source: FA (2003), Blasco, Bellan & Lacraze (1996).

### 5.7. Carbon Stock Estimates

The *World Conservation Monitoring Center* (WCMC) has estimated the carbon stock of Cambodia's forests. According to the carbon datasets generated for this analysis, a total of 2.96 Gt of carbon is stored in Cambodia's forest ecosystems. This analysis purports about one third of this carbon is stored in the country's evergreen forest, and the largest areas of very high carbon density are found in the forests of the South-West of the country (Figure 5). It also suggests the highest carbon density class, which holds 20 percent of the country's carbon, covers 12 percent of the country's land area. The two highest carbon density categories combined, which store approximately 40 percent of Cambodia's carbon stock, represent 24 percent of its total land area (see Figure 5).

While the estimate of 2.96 Gt is consistent with earlier estimates by the UNEP and the WCMC, there is some concern that the mapping of the medium and high carbon areas (>200 tons/hectare of biomass) are not adequately mapped. This concern stems from the adequacy of the forest typology used in the analysis as pre-war biomass estimates suggest that sub-montane forests in areas south-west Cambodia above 600 meters above sea level are quite low (67 tons/hectare) while those of the dry evergreen forests in north-central Cambodia, such as those in Prey Lang, are generally over 200 tons/hectare.

Figure 5: Distribution of Biomass Carbon in Cambodia (WCMC 2010).



## 5.8. Forest Fire

Fire is active across half of Cambodia's forestlands and has a huge potential to degrade forest areas. While the *REDD+ Roadmap* implies forest fire is not a major driver of forest degradation, the current authors feel there is an abundance of evidence suggesting otherwise. The role of fire in the conversion of diverse evergreen and semi-evergreen forests with high carbon stocks in the recent past has been documented (see box 2).

While some observers may contend the current fire regime does not result in a net loss of forest carbon, there is no evidence to suggest fire regimes have remained constant. This may not be unlikely due to the present extensive forest encroachment. Furthermore, comparison of forest cover maps from the 1960s and 1970s with recent assessments indicates deciduous forests have replaced substantial areas of semi-evergreen forest in north and northeast Cambodia.

Cambodia's deciduous forests vary greatly in terms of tree density. Some areas have short and sparse woodlands which are unlikely to contain much carbon stock and are unlikely to sequester significant amounts of carbon in the future.

Nevertheless, there is potential for rehabilitation of higher biomass semi-evergreen forests in select areas of deciduous forest. This strategy would require careful management of the fire regime and abundant seed sources of semi-evergreen forest tree species and is likely to be viable only where substantial semi-evergreen forests already exist.

## 5.9. Enhancement of Carbon Stocks

Effective REDD strategies are likely to remain elusive if they do not result in sufficient carbon savings to compete with the opportunity costs of alternative land use (Ashwell et.al. 2011). A key global strategy for this is undertaking *enhancement of carbon stocks* to complement

measures against forest loss and degradation through forest rehabilitation. Much of Cambodia's forests have potential for carbon stock enhancement by virtue of their high levels of forest degradation. If developed appropriately, these strategies would also contribute to addressing other issues including the maintenance of biodiversity and water flows as well as support the participation and benefits to local communities.

Two recent studies suggest forest degradation in both the coastal wet evergreen and the inland dry evergreen forests have resulted in the loss of 40 to 45 percent of biomass and carbon stocks (Sasaki 2010, Ashwell et. al. 2011). The existence of extensive areas of degraded forest provides opportunity for the enhancement of carbon stocks through the sequestration of additional large volumes of carbon in addition to retaining the existing carbon stocks. These forests will provide for continued and enhanced CO<sub>2</sub> removal if they are allowed to recover rather than be encroached upon or cleared. Conservative modeling of carbon stocks in the coastal wet evergreen forests estimates this enhancement may sequester an additional carbon stock equivalent to nine percent of the standing stock annually (Ashwell et. al. 2011).

### **5.10. Watershed Management**

The watersheds are widely acknowledged as being the most tangible of environmental services and one of the most easily understood and appreciated by Cambodians. Rivers that drain directly into the Great Lake from the Cardamom Mountains, Northern Plains, and the Mekong River are provide essential environmental services to millions of Cambodians, providing water to urban and rural consumers downstream. Moreover, their contribution to the maintenance of the dry season water flows and lake levels, in support of maintaining fisheries production in the Great Lake is important for ecosystem stability and food security. Maintaining this ecological function requires active measures to protect watershed integrity. These concern the protection and enhancement of forest cover in forest and degraded lands as well as support of sustainable land management in agricultural areas.

Relevant institutions include the Ministry of Water Resources and Meteorology (MOWRAM), the National Watershed Management Working Group, and the provincial watershed management committees. MOWRAM is responsible for watershed maintenance, river catchments, water resource use, management and conservation, and the development of water use associations. The *National Watershed Management Working Group* is chaired by the FA and has members from MOWRAM, MOE, Tonle Sap Authority, MOI, Royal University of Agriculture, MIME, MAFF, and the Ministry of Women Affairs and Rural Development. The Working Group is responsible for giving guidance and advice on watershed management, planning, implementation, and monitoring including selection of pilot "critical" watershed with trans-boundary relevance.

Watershed management is not well developed in Cambodia and many watersheds are degraded. Poor watershed management has exacerbated recent flood damage associated with one of the highest flood levels for seven years. This was highlighted in September 2011 when international media reports featured the flooding within the Angkor World Heritage Site which forced the evacuation of 200 international tourists by helicopter from Banteay Serey temple. Banteay Serey lies at the base of the extensive but recently deforested slopes of Phnom Kulen Mountain. Forest loss in Siem Reap province, in part to support the burgeoning tourism industry through hotel construction and furnishing, is having a negative impact on the image of the site.

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) has provided support and funds to the *Siem Reap Watershed Management Committee*. This committee is chaired by provincial governor and consists of provincial staff from the abovementioned agencies. The

Committee's main responsibilities include investigation and report on watershed management functions, issues, and guidelines within the Siem Reap watershed in seven districts and 27 communes. The project ended in May 2011 and the intended replication structure and scope of watershed management work from Siem Reap to Battambang has not been carried out as planned.

### **5.11. Dryland Forest Restoration**

The forested uplands of the catchment's areas provide important ecological functions in the form of watershed protection, carbon sequestration, and the maintenance of biological diversity. They encompass a wide variety of forest formations and plant communities that provide habitat for an array of plant and animal species, many of which have direct significance for the livelihoods of agrarian and forest communities.

These forests have been subject to extensive loss and degradation during the post war period. While deforestation rates may have been arrested, extensive logging, particularly during the 1990s, has left the large majority of areas degraded to some extent. As much as 40 percent of forest areas remain subject to recurrent disturbance simply by virtue of their proximity to villages and roads. These losses represent substantial impairment of ecological functions and engender extensive threats to biodiversity values.

Furthermore, many of these forest areas remain directly threatened by further degradation and/or loss through unsustainable use of wood based products and clearing for agriculture. Heavy demands for land from both land concessions and small-scale farmers will continue to drive irreversible forest loss if appropriate management strategies are not developed and institutionalized. Maintaining ecological functions is the prime concern for land use. The development of an informed understanding of the vegetation patterns and processes is required to help develop management strategies that maintain and enhance the biological productivity of these forest systems as well as support the monitoring, reporting, and verification strategies that REDD+ requires.

### **5.12. Support to Protected Areas Management**

Protected areas are an indispensable element of any natural resource management strategy. Extensive areas within the target provinces are allocated to nationally designated, protected areas. These encompass a wide array of vegetation types and their attendant biodiversity that, when properly managed, contribute to the stabilization of land use patterns, maintenance of environmental services as well as biodiversity conservation. Yet Cambodia's protected areas are acknowledged as being subject to heavy threats. Media reports suggest as much as five percent of the nation's protected areas has been allocated to ELCs. With 25 percent of its land area allocated to protected areas, Cambodia is well placed to develop a viable protected area system that is of international standard, conserves biodiversity, and sustains a range of important environmental services.

Recent reviews of protected areas management in the Cardamom Mountains, Tonle Sap, and the Northern Plains have identified issues and constraints for effective protected area management related to six key themes: context, planning, inputs, process, outputs, and outcomes (Ashwell 2011). The effectiveness of protected area management varies substantially. While some protected areas, such as Prek Toal, are managed quite effectively, others are limited by a number of factors, including project management concerns.

Typically, protected area projects within the target area are good at the delivery of outputs



following consideration of the context, minimal levels of planning, appropriate design of implementation processes, and the provision of inputs. Nevertheless, these gains are often lost following the end of assistance projects, as the broader outcomes have not been attained. The realization of these broader outcomes is dependent on greater emphasis on planning either through multiple planning cycles or iterative planning during a project cycle.

The effectiveness of these management processes is also dependent on the time since original investment at the site and the complexity of local government, particularly at the higher levels. These determinant factors point to the need for on-going assistance to protected area management through iterative planning and implementation phases that engage effectively with the higher levels of local government.

The *Center for Clean Air Policy* (Ashwell et.al. 2011) is a recent policy blueprint proposed for developing REDD in Cambodia's protected areas and it identifies the following as important elements of a REDD strategy:

- A national protected area system plan; codified in Cambodia's Protected Area Law as a National Protected Area Strategic Management Plan.
- Restoration of degraded forests through rehabilitation or reforestation.
- Matching of protected areas zoning system with implementation of REDD objectives.
- Prioritization of investments in rehabilitation in support of effective management zoning.
- Decentralization of management functions to local levels.
- Use of fund-based structures to coordinate Convention on Biodiversity and REDD related funding within a zone based implementation strategy.
- Integration with land use planning processes.

### **5.13. National and Regional Land Use Planning**

Supporting dialogue for the development of adequate spatial planning policy formulation, and of equitable land use allocation procedures is in great need. While there are a number of tools that support local land use planning, there is poor or no integration of land use planning initiatives at larger geographic scales. There are no supra-provincial land-use planning frameworks that group provinces that share similar physical landscapes in forest areas; though the Tonle Sap Authority does have such a function for the Tonle Sap floodplain areas.

In addition, provincial and district land use planning processes remain largely untested, particularly with respect to their utility in ensuring conservation and sustainable use of natural resources. Integration of natural resource management in commune plans is limited as the safeguards that are in place to promote environmental sustainability are new and practice is limited.

Harmonization of land-use planning over larger geographic scales is required in support of efficient and cost effective delivery of various services, such as the realization of an economy of scale associated with infrastructure delivery. If Cambodia wishes to maximize benefit from the market opportunities provided by the rapidly growing economies of Association of Southeast Asian Nations (ASEAN) and China, it is essential to establish a rational land use planning and allocation system in support of a resilient and productive landscape that can produce goods for the growing middle classes.

Compliance with emerging international standards for REDD+ carbon accounting under the United Nations Framework Convention on Climate Change (UNFCCC) and other forums will require a national approach to land use planning. A national carbon accounting system that aims to address concerns over leakage is unlikely to be very effective without this. A national framework to land use allocation will contribute to reducing the potential vulnerability of forest management projects to uncoordinated land use planning and competition from other sectors.

Furthermore, if REDD+ initiatives are to gain the trust of investors and to remain viable and productive over time, a high level inter-sectoral national body is required. This body would strengthen cross-sector approaches to national and regional land use planning and allocation of lands to end uses based upon transparency in information sharing, participatory processes, and conflict resolution.

A *Land Conservation Council* may be required to undertake national and regional land use planning to ensure a productive landscape in support of the broad spectrum of national development objectives. The *Land Conservation Council* should include broad representation of government and non-government sectors to ensure more informed discussion of land use options. This structure would ensure that broad public participation informs the land use planning process and prevents competing agencies from undertaking uncoordinated land allocations. This Council would require political backing from the highest levels of government and should perhaps be created as an independent statutory authority backed by its own legislation that will outline its relationship to Cambodia's *Council on Land Policy* and other state agencies.

#### **5.14. Participation in Existing Land-use Planning Procedures**

Sustainable forest management and REDD+ activities interact with a number of land use planning instruments. These include the local community based natural resource management tools such as community fishery areas, community forestry areas and community protected areas, each involves a series of steps in support of enabling local communities to manage local resources in an equitable and sustainable manner. Nevertheless, it is unlikely that these strategies will remain effective in the long run unless complemented by efforts to secure land tenure over a community's agricultural lands, as well as legal measures and management strategies that ensure adjacent forest areas will be retained.

Another land and resource management instrument is commune land use planning or CLUP. This is undertaken through the Ministry of Land Management, Urban Planning and Construction and supported by the Commune Investment Plan (CIP) and the Commune-Sangkat Fund facilitated by the NCDD. The latter includes funds specifically allocated for natural resource management activities and features a set of environmental and social safeguards.

Commune Land Use Planning (CLUP) has not been very successful in forestlands. It has had some difficulty in facilitating official recognition of community forests by commune authorities, and economic land concession companies have taken some community forests. Limited inter-ministerial coordination among MOE, MAFF, MOI, MLMUPC and ELCs is the main constraint to CLUP. CLUP is a lengthy process that involves detailed technical procedures supported by the MLMUPC. The *Organic Law* does not clearly delegate or designate powers to local authorities (i.e., commune councils) to decide communal natural resources including communal forests and MAFF, and MOE can or do not recognize those communities that are claimed by ELCs.

Nevertheless, the recent requirement to harmonize some of the underpinning laws is likely to provide new opportunity for implementing CLUP as a viable natural resource management strategy.

### **5.15. Mainstreaming Gender in Community-Based Natural Resource Management**

Food security for poor households is often dependent on minor forest resources (non-timber forest products and fuelwood), which are often collected by women, either for family consumption or for sale. Women are poorly represented in the management of local and central natural resource management institutions. Annual action plans for both the *National Forest Program* and the *Strategic Plan for Fisheries* contain activities and outcomes concerning gender mainstreaming. The following points are a combined summary for the two sectors:

- Provide opportunity to women members of forestry community, community protected areas, and community fisheries to participate in community activities and resources management.
- Increase rural women awareness on forestry, fisheries, water, and protected area program and other alternative career selection.
- Review the participation of women in natural resources management and development to seek for other alternative livelihoods.
- Provide ability to women to access credit services for alternative livelihoods.
- Improve forestry, fisheries, water, and protected area extension services for women and men in order to encourage rural women understanding.
- Organize workshops and study tours for rural women to understand about management and utilization of natural resources.
- Capacity building on gender awareness to rural fisheries staff and rural women (capacity building to FiA staff and local communities including training and networking to be aligned with gender mainstreaming policy and strategy in fisheries).
- Gender in post-harvest fisheries and one village one product (promotion of gender role in one village one fishery product and post-harvest activities).

### **5.16. Private Sector Involvement**

A number of issues have constrained productive private sector involvement in the forest sector. There is limited experience and support for the development of public-private partnerships in Cambodia, particularly in relation to its implications for natural resource management. In addition, some development partners report the timber production sector is difficult to assess due to compartmentalization within the FA, though it is easier to assess ecotourism developments within protected areas.

Many private sector activities facilitate forest encroachment and clearance. Land titles are allocated to investors in preference to local communities as an incentive for small holders to invest. In particular, agro-industrial developments undertaken through the granting of ELCs and SLCs create difficulties for indigenous land title. While they may result in agro-industry developments and associated job creation, the large majority of jobs are awarded to migrant laborers from other provinces rather than local communities. Indeed, many local residents who lost land to the concessions are reticent to take jobs with them.

#### Commercial Scale Operations

There is, however, considerable scope for private investment in community-based production systems. These include a range of small and medium enterprises (SMEs) though the scalability, and associated income and job creation, of these initiatives generally remains unclear. Nevertheless, there is scope for developing appropriate technologies to add value to market chains and matching investment strategies. These may include rural energy investments in fuel wood, charcoal and bio-digesters, and in the development of rural micro-finance institutions. They may also include multi-tiered agro-forestry systems in support of rural livelihoods and may be a particularly useful tool for securing community land tenure for some ethnic minorities.

The huge potential for nature-based tourism is constrained by the large gap between commercial and cottage industry initiatives. Large tourism projects aimed at natural areas lack either or both natural resource management objectives or strategies, or appropriate monitoring. Small cottage based initiatives are being implemented in a number of areas. However, their scalability remains uncertain as they focus on local sites rather than premium sites that are likely to attract visitors who are willing to pay more for the experience they are receiving.

Some groups have suggested that some ELCs and larger tourism projects in forest areas are willing to partner with technically competent groups to seek ways of mitigating environmental and social impacts.

#### Community Forestry/Community Protected Area Business Development

For Community Forestry/Community Protected Areas to be effective, there must be captured revenues by the concerned community. Under the *NFP*, business planning is an integral part of management planning in the development of community forestry groups. A business-planning step is included as step 9 among the formal 11 steps of CF registration. In fact, there are three closely interdependent steps, i.e. resource inventory, business development, and management planning, as obviously management plans must recognize the nature and extent of the resources available at the one end, and the level of off-take which can be possible to provide inputs to the enterprise.

For joint ventures between community forests and private enterprises, resource inventory and assessment, opportunity identification, business planning, and start-up capital provision, are necessary components. These may use a franchise model, in which the lead firms would supply technology, training, market access, and capital to the producers (as in McDonald's restaurants). FAO, PACT, and RECOFTC have been working on these aspects in Cambodia.

#### Partnership Forestry

The concept of partnership forestry was introduced during the *Independent Multi-Stakeholder Forest Sector Review (IFSR)* in 2004 as a decentralized approach to forest management and is now included in the *NFP*. The adoption of this approach will lead to partnerships between the FA and the commune councils, which are the elected local level administrative bodies. The agreements would be in the form of a *Commune Forest Plan (CFP)*, which would be incorporated into the *Commune Development Plan (CDP)*. The IFSR proposed a role for the FA as the regulatory authority and in setting guidelines for the CFP. However, the IFSR did not address its role in the implementation of commune forest plans, nor does it provide any direction for the implementation.

The Technical Working Group-Forestry and Environment action plan includes provisions for the assessment and testing of partnership forestry arrangements in pilot communes as an alternative form of forest management and a mechanism for forest revenue to contribute to local development. A number of proposals have been put forward and the FA is conducting

a pilot project in Kratie province.

The Blomley *et al* (2010) study suggests a few partnership forestry sites should be piloted in order to compare success factors. Planning and implementation at commune level will provide the scale and institutional capacity necessary for a reasonable chance at success. Formal incorporation of the projects into the *CDP* will provide strength in the face of competing interests. Identification of communes where partnership forestry is an opportunity that will require considerable survey work.

## 6. CONCLUSION

Both the current nature of the land, land use change and forest sector (LULUCF) in Cambodia and the status of current investments by development partners in the sector provide substantial opportunities for engagement. These opportunities concern sustainable forest management and REDD+, fit well with the *Sustainable Landscapes Pillar* of U.S. government's *Global Climate Change Initiative*, and are supportive of *Low Emission Development Strategies*. Indeed, the LULUCF sector constitutes an opportunity for Cambodia to develop a major component of a national Low Emissions Development Strategy or Green Growth Strategy when emissions from other sectors are sure to increase as social and economic development progresses.

Prior to 2005, these opportunities derive from recent reforms in the forest sector following a period in which the sector was particularly problematic. Key reforms include the development of a *National Forest Program*, evolution of sub-national authorities, and democratic development and passage of a Protected Area Law. The recent development of a REDD Readiness Roadmap has focused attention on the substantial reduction of Greenhouse gas emissions that would derive if the sector were well managed.

Nevertheless, these reforms require increased levels of support, effective coordination, and continuity at a time when some of the more traditional donors are withdrawing from the sector. Danish International Development Agency (DANIDA) and the World Bank have given extensive support towards improving policy and practice in the LULUCF sector for many years, while other donors (ADB, EU, AFD, and UNDP) are either entering the scene for the first time or increasing their support. The recent reforms remain vulnerable due to concerns over continuity.

There is an inherent risk associated with this changeover. Community forestry approaches are appealing because of government support for the substantial national target, as well as because of the prospect that it will bring benefits to a large constituency. However, community forestry does not ensure sustainable landscape management. Though substantial, the two million hectare goal for community forestry is equivalent to only twenty percent of Cambodia's forest areas. The remaining 80 percent of these forests require viable long-term strategies that are robust in the short and medium-terms.

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