

CDM Country Guide for CAMBODIA



CDM Country Guide for CAMBODIA

Edited by the Institute for Global Environmental Strategies
1st Edition



Institute for Global Environmental
Strategies



Ministry of the Environment
Japan



Ministry of Environment
Cambodia

Ministry of the Environment, Japan
1-2-2, Kasumigaseki, Chiyoda-ku,
Tokyo, 100-8975 Japan
Telephone: +81-(0)3-5521-8330 Fax: +81-(0)3-3580-1382

Institute for Global Environmental Strategies (IGES)
2108-11 Kamiyamaguchi, Hayama, Kanagawa 240-0115, Japan
Telephone: +81-(0)46-855-3700 Fax: +81-(0)46-855-3709
<http://www.iges.or.jp>

Ministry of Environment, Cambodia
#48, Samdech Preah Sihanouk, Chamkarmon, Phnom Penh, Kingdom of Cambodia
Telephone/Fax: +855-23-218-370
<http://www.camclimate.org.kh>

Copyright © 2005 by Ministry of the Environment, Japan

First edition 2005

Electronic edition published 2005

All rights reserved. Inquiries regarding this publication copyright should be addressed to IGES in writing. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from Ministry of the Environment, Japan through IGES.

Printed in Japan

ISBN: 4-88788-018-9

This book is made as part of the Integrated Capacity Strengthening for Clean Development Mechanism/Joint Implementation (ICS-CDM/JI) programme and published by the Institute for Global Environmental Strategies.

Photo credits – cover page photos courtesy of the Cambodian Climate Change Office.

Whilst advice and information in this book is believed to be true and accurate at the date of going to press, neither the authors nor publisher can accept any legal responsibility or liability for any errors or omissions that may be made of.

Copyedited by Greg Helten

Printed and bound by Sato Printing Co., Ltd..

This book is printed on recycled paper using soy ink.

FOREWORD

The Kyoto Protocol, signed in 1997, finally entered into force on February 16, 2005. Since the signing of the Marrakesh Accords in 2001, which set out the fundamental rules for the Kyoto mechanisms—the Clean Development Mechanism (CDM), joint implementation (JI), and emissions trading (ET)—the CDM has been the forerunner, with 12 registered projects and more than 150 projects in the validation stage at the time of publishing this guidebook. The CDM was designed to assist Annex I countries in meeting their greenhouse gas emissions reduction targets by implementing reduction/sequestration activities in non-Annex I countries and counting the reduced/sequestered amounts as purchasable “credits.” Before the protocol was in effect, investors and project developers were hesitant to move into the CDM field. Since it came into force there has been a steep increase in the number of projects submitted for validation and registration, and this upward trend is expected to continue in the next few years.

Despite the high demand to utilize the CDM and the continuing improvement in CDM rules, many investors and developers still find it difficult to implement projects. There are many factors acting as impediments, including inherent, country-specific problems in attracting foreign investment. One problem directly related to the effectiveness of the CDM, however, is the unpreparedness of developing countries to host projects. The reasons for this include premature institutional development, the existing highly complicated system for endorsing projects, a lack of experience among government officials, and lack of coordination among ministries and relevant governmental institutions—just to name a few. Therefore, it is imperative to ameliorate the situation in host countries in order to foster CDM activities and contribute to global efforts to combat global warming.

Two key strategies available to enhance the ability of host countries to utilize the CDM are *information collection/rearrangement/dissemination* and *capacity building*. In most host countries some relevant information already exists, but often in disparate pieces or not considered in terms of the CDM—and it has never been put together before in a comprehensive form. This is the main reason for publishing this series of guidebooks, which feature information on specific countries in Asia. By making the guidebooks as user-friendly as possible, they provide essential information that project developers and investors will need for most effective CDM project preparation and implementation in each country.

This guidebook is part of a series prepared as a core component of the information dissemination and awareness-raising activities under the Japanese Ministry of the Environment’s Integrated Capacity Strengthening for Clean Development Mechanism/Joint Implementation (ICS-CDM/JI) programme.

Akio Morishima
Chair, IGES Board of Directors

ACKNOWLEDGEMENTS

This guidebook was developed by the Institute for Global Environmental Strategies (IGES) under the Integrated Capacity Strengthening for the Clean Development Mechanism and Joint Implementation (ICS-CDM/JI) programme.

We would like to express our sincere gratitude to Ministry of the Environment, Japan, for its invaluable support in making this project a reality.

The realization of this book would never have been accomplished without the extensive support of the Cambodian Climate Change Office under Cambodia's Ministry of Environment.

Mr. Keisuke Iyadomi, IGES country officer for Cambodia, and Ms. Yukimi Shimura, a chief IGES editor of the CDM country guidebook series, took main responsibility for the editing as well as the contents, under the supervision of Mr. Shinichi Iioka, IGES CDM Programme manager. Dr. Thanakavaro De Lopez of the Cambodian Research Centre for Development prepared the main manuscript by compiling all the statistics, reports, government regulations, laws, and investment-related information into one single easy-to-read document. Mr. Greg Helten proofread all the manuscripts and contributed extensive editing work. Ms. Akiko Sato of IGES also contributed substantial feedback to make this guidebook user-friendly.

IGES would also like to extend special thanks to Dr. Tin Ponlok and Mr. Sum Thy of Cambodia's Ministry of Environment and their colleagues at the Cambodian Climate Change Office for their extensive support in making this guidebook truly practical and up to date.

Dr. Kayo Ikeda, Mr. Jun Ichihara, Mr. Kazuhisa Koakutsu, and Ms. Sakae Seki of IGES provided extensive support throughout the project's implementation. Also special thanks to Mr. Kiyoto Tanabe of the Intergovernmental Panel on Climate Change National Greenhouse Gas Inventories Programme (IPCC NGGIP) for his valuable input.

We would also like to thank the Cambodian Climate Change Office for use of the cover photos.

CONTENTS

LIST OF BOXES, FIGURES, AND TABLES.....	XI
ABBREVIATIONS.....	XIII
EXECUTIVE SUMMARY	XV
1. INTRODUCTION.....	17
2. SOCIAL, ECONOMIC, AND POLITICAL INFORMATION	19
2.1 Country profile	19
2.2 Social profile	20
2.3 Economic profile	21
2.4 Political profile.....	26
3. THE CDM PROJECT CYCLE.....	31
3.1 The Clean Development Mechanism	31
3.2 Project activities eligible for the CDM.....	32
3.3 Classification of CDM project activities	33
3.4 Small-scale CDM projects	34
3.5 Forestry and the CDM	35
3.6 Credits and crediting periods.....	36
3.7 Overview of the CDM project cycle	37
3.7.1 <i>Project formulation</i>	37
3.7.2 <i>The project design document</i>	39
3.7.3 <i>The baseline</i>	40
3.7.4 <i>Additionality</i>	42
3.7.5 <i>Gaining approval from a designated national authority (DNA)</i>	44
3.7.6 <i>Validation and registration</i>	45
3.7.7 <i>Monitoring a CDM project activity</i>	46
3.7.8 <i>Verification and certification</i>	46
3.7.9 <i>Issuance of CERs</i>	47
4. POTENTIAL FOR CDM PROJECTS IN CAMBODIA.....	49
4.1 Summary of greenhouse gas emissions in Cambodia.....	49
4.2 Potential for CDM projects in the energy sector.....	50
4.2.1 <i>Overview</i>	50
4.2.2 <i>Potential for CDM projects in hydropower</i>	51

4.2.3 Potential for CDM projects in bioenergy	51
4.2.4 Potential for CDM projects in solar energy	52
4.2.5 Potential for CDM projects in wind energy.....	53
4.2.6 Potential for CDM projects in energy efficiency.....	53
4.3 Forestry sector	55
4.3.1 Deforestation trends and CDM eligibility.....	55
4.3.2 Potential for small-scale afforestation/reforestation CDM projects.....	58
5. CDM-RELATED GOVERNMENT AUTHORITIES.....	61
5.1 Current structure of Cambodia’s designated national authority	61
5.2 Future developments of Cambodia’s designated national authority.....	62
6. CDM PROJECT APPROVAL PROCEDURES AND REQUIREMENTS.....	67
6.1 Sustainable development criteria and assessment matrix	67
6.2 Current approval procedures	68
6.3 Proposed approval procedures.....	68
7. LAWS AND REGULATIONS.....	73
7.1 Investment laws	73
7.2 Investment restrictions relevant to CDM projects	74
7.3 Environmental laws.....	74
7.4 Other regulations applicable to CDM energy projects	76
7.5 Regulations applicable to CDM forestry projects.....	77
8. FINANCING AND FISCAL ISSUES	79
8.1 Financial system	79
8.2 Fiscal issues	80
9. GOVERNMENT INCENTIVES	83
9.1 Foreign investment incentives	83
9.2 Additional tax incentives	83
9.3 Renewable energy incentives.....	85
APPENDICES	89
Appendix I. List of Annex I and Annex B Parties*	90
Appendix II. List of consolidated and approved methodologies	91
Appendix III. Simplified baseline and monitoring methodologies	94
Appendix IV. Sustainable development criteria and assessment matrix.....	95
Appendix V. Contact persons in government agencies.....	102

Appendix VI. Relevant Web sites	104
Appendix VII. Glossary	105
REFERENCES	108

LIST OF BOXES, FIGURES, AND TABLES

BOXES

Box 2.1. The Cambodian government's twelve-point plan to improve the investment climate...	25
Box 3.1. The six greenhouse gases addressed under the Kyoto Protocol	31
Box 3.2. How to determine if a project can be considered debundled.....	35
Box 3.3. Designated operational entities.....	45
Box 7.1. Summary of main investment laws	73
Box 7.2. Steps to getting an investment license in Cambodia	74
Box 7.3. Summary of Cambodia's main environmental laws.....	75
Box 9.1. Countries with which Cambodia has signed major bilateral investment treaties.....	83
Box 9.2. Potential CDM investment sectors to which incentives apply.....	84
Box 9.3. Ten-year targets of the Renewable Electricity Action Plan.....	85
Box 9.4. Roles of the Rural and Renewable Electrification Fund	87

FIGURES

Figure 2.1. Map of Cambodia.....	20
Figure 2.2. Cambodia's public governance structure.....	29
Figure 3.1. Diagram of how the CDM functions	32
Figure 3.2. Classification of sub-categories of CDM project activities	33
Figure 3.3. Overview of the CDM project cycle.....	39
Figure 3.4. Baseline scenario.....	40
Figure 3.5. Baseline scenario and net GHG removals by sinks	42
Figure 3.6. Calculation of net GHG removals by sinks	42
Figure 3.7. Project assessment using the additionality tools	43
Figure 4.1. Share of the three main GHGs and total CO ₂ e emissions by sector.....	50
Figure 4.2. Land cover map of Cambodia.....	59
Figure 5.1. Cambodia's current climate change framework.....	62
Figure 6.1. Flow diagram of the approval process for CDM projects in Cambodia	70
Figure 6.2. Timeframe and activities for assessment of proposed CDM projects in Cambodia (draft) .	71
Figure 7.1. Summary of key legislation applicable to CDM projects in Cambodia	78

TABLES

Table 2.1. Key country information	19
Table 2.2. Cambodia's GDP value by economic activity, in millions of riels at current prices* ...	21
Table 2.3. Cambodia's GDP growth rates by economic activity, in current prices.....	23
Table 2.4. Official external assistance to Cambodia, in billions of riels	24
Table 2.5. Cambodia's urban consumer price index (CPI)	24
Table 2.6. Khmer riel (KHR) exchange rate against the US dollar	24
Table 2.7. Political regimes of Cambodia from 1863 to present	27
Table 2.8. Length of terms of office for political figures.....	28
Table 3.1. List of project categories eligible under the CDM.....	33
Table 3.2. Credits and crediting period for CDM project activities	36
Table 3.3. Criteria for justifying additionality for a small-scale CDM project activity	44
Table 3.4. Administration fees for CDM projects.....	46
Table 4.1. Potential energy efficiency projects and potential savings identified	54
Table 4.2. Deforestation trends in Cambodia, by province	56
Table 4.3. Forest cover by province in 1985–87 and 1992/93.....	57
Table 5.1. Summary of Cambodian DNA players	64
Table 7.1. List of potential CDM projects requiring an environmental impact assessment	75
Table 8.1. Summary of Cambodian tax rates.....	81
Table 9.1. Proposed Rural and Renewable Electrification Fund subsidy rates, US dollars	87

ABBREVIATIONS

Technical terms

CDM	Clean Development Mechanism
EIA	environmental impact assessment
GDP	gross domestic product
Gg	gigagram
GNP	gross national product
GWh	gigawatt-hour
ha	hectare
HDI	human development index
IPP	independent power producer
kg	kilogram
km	kilometre
km ²	square kilometre
kWh	kilowatt-hour
IFSR	independent forest sector review
LUCF	land-use change and forestry
m	metre
m/s	metre(s) per second
MW	megawatt
NEAP	National Environmental Action Plan
PV	photovoltaic
REAP	Renewable Electricity Action Plan
REE	rural electricity enterprise
SEDP	socioeconomic development plans
SHS	solar home system
TRIMS	Trade-Related Investment Measures Agreement
TRIPS	trade-related property rights
W	watt
Wp	watt peak

Institutions and organisations

ADB	Asian Development Bank
CDRI	Cambodia Development Research Institute
CRCD	Cambodian Research Centre for Development
CPP	Cambodian People's Party
EAC	Electricity Authority of Cambodia
EDC	Electricité du Cambodge
FAO	UN Food and Agriculture Organization
FUNCIPEC	Front Uni National pour un Cambodge Indépendant Pacifique et Coopératif
GEF	Global Environment Facility
ICC	International Chamber of Commerce
IDA	International Development Association
IPCC	Intergovernmental Panel on Climate Change
ITC	Institute of Technology of Cambodia
MAFF	Ministry of Agriculture, Forestry and Fisheries
MIME	Ministry of Industry, Mines and Energy
MOE	Ministry of Environment
MOF	Ministry of Economy and Finance
MOP	Ministry of Planning
NEDO	New Energy and Industrial Technology Development Organization
NGO	non-governmental organization
NIS	National Institute of Statistics
RGC	Royal Government of Cambodia
REB	Rural Electrification Board
REF	Rural Electrification Fund
RUA	Royal University of Agriculture
RUPP	Royal University of Phnom Penh
SHV	Sihanoukville
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNCTAD	United Nations Conference on Trade and Development
WB	World Bank

EXECUTIVE SUMMARY

Social, economic, and political profile

Cambodia is constitutionally defined as a multiparty liberal democratic regime, where government is formed by a two-thirds majority of the National Assembly. The King reigns as a symbol of unity of Cambodia but does not govern the nation. The Royal Government of Cambodia (RGC) is led by the Prime Minister.

Because of its history of traumatic conflicts with long-lasting effects, Cambodia remains to a large extent an agrarian economy with pressing development needs. Agriculture still accounts for more than half its gross domestic product. From a human development perspective, it lags at the bottom of the group of medium-developed countries; the *2004 UN Human Development Index* ranks Cambodia 130th out of 177 countries. The Clean Development Mechanism (CDM) provides investment opportunities for meeting national sustainable development objectives, in particular poverty reduction, while mitigating GHG emissions.

Potential CDM projects in Cambodia

- **Energy projects**

Cambodia's energy sector is developing at a fast pace to keep up with the country's growing needs. The most promising sustainable energy projects eligible for the CDM are in the areas of hydropower, biomass, and energy efficiency. Its large hydropower potential, estimated at up to 10,000 megawatts (MW), remains to a large extent unexploited.

While its agricultural residues have been traditionally used for household cooking fuel, soil improvement, or livestock feed, advanced biomass energy (bioenergy) applications remain limited. Cambodia's potential for energy savings in the power, industrial, commercial, and residential sectors has been estimated at almost 470 gigawatt-hours (GWh) per year.

- **Forestry projects**

Deforestation in Cambodia has left few commercially exploitable areas and primary forest. Because logging accelerated in the beginning of the 1990s, there may be few opportunities for implementing large-scale reforestation activities. On the one hand, the central provinces—which have been devoid of forest since before 1990—concentrate populations and agricultural production. On the other hand, more recently deforested areas in the outlying provinces may present few opportunities for large CDM sink projects.

Cambodia's highest potential for CDM sinks consists of small-scale afforestation and reforestation activities implemented by low-income communities. Forests have traditionally provided Cambodia's poor with a host of timber and non-timber forest products, acting as an essential complement to rice-farming and fishing. Community-based CDM sinks have the potential for alleviating poverty in rural areas by diversifying incomes and by providing local people with forest products. In addition, these small-scale CDM sink activities will benefit from employing simplified methodologies.

CDM approval procedures and requirements

The Ministry of Environment, through its Cambodian Climate Change Office (CCCO), acts as the country's designated national authority (DNA). It is the national focal point for the CDM and the Kyoto Protocol, as well as Cambodia's secretariat of the United Nations Framework Convention on Climate Change.

The CCCO is responsible for assessing proposed CDM projects against national sustainable development criteria and is authorized to provide written approval for proposed CDM projects conforming to these criteria. A *sustainable development matrix* is used as a tool to assess the contribution of CDM projects in the following four aspects of sustainable development: economic, social, environmental, and technology transfer. Project proponents must submit a complete *project design document* to the CCCO. The *monitoring and verification plan* must cover all commitments of the project outlined in the project design document, including those pertaining to sustainable development.

Cambodian laws and regulations relevant to the CDM

All CDM projects must comply with Cambodia's Law on Investment, which provides the institutional and legal basis for foreign investment in the country. CDM afforestation and reforestation projects must comply with the Forestry Law, which aims to ensure the sustainable management of the country's forests. CDM energy projects producing electricity must comply with the Electricity Law, which governs the operations of the power industry.

Depending on the nature and size of their activities, CDM projects undertaken in Cambodia may be required by law to undertake an environmental impact assessment (EIA). The list of potential CDM projects that require an EIA includes, but is not limited to, the following: (1) power plants with installed capacity of 5 MW and higher, (2) hydropower plants with installed capacity of 1 MW and higher, and (3) agriculture and agro-industrial land of 10,000 hectares (ha) and larger.

Financing and fiscal issues

The US dollar is the primary medium of exchange in Cambodia. Being a cash economy with limited banking intermediation, a wide range of financial services is available to foreign investors. Local banks prefer to issue short-term loans that are rolled over at interest rates in excess of 20 percent. Thus, foreign investors seldom rely on local financial institutions for working or investment capital. There is no restriction on foreign exchange operations, including all types of international transfers.

Government incentives

Cambodia is a member of the World Trade Organization (WTO). The country offers foreign investors, including CDM project developers, an attractive package of investment incentives, including advantageous taxation and tax holidays, free remittance of foreign currencies, employment of expatriate staff, and no price controls. Subsidies for investments in renewable energy projects will be available through the donor-funded Rural Electrification Fund.

1. INTRODUCTION

This guide is intended for those interested or already involved in Clean Development Mechanism (CDM) projects in Cambodia as proponents, developers, or investors. The goal here is to provide a summary of the information necessary for successful implementation of CDM projects in the country, including relevant references to official documents and contact details. As well, it thoroughly describes the project approval procedures and processes of Cambodia's designated national authority (DNA)—the Ministry of Environment, through its Cambodian Climate Change Office (CCCO)—including Cambodia's official sustainable development objectives. As this guide is primarily intended for the use of foreign stakeholders not familiar with Cambodia, some general social and macroeconomic conditions are also presented.

Whenever possible, translations of official documents, in their final or draft versions, are provided. Readers are urged to carefully examine the actual official documents so as to avoid misinterpretation of the letter of the law. When in doubt, project proponents should not hesitate to contact the CCCO, which acts as both Cambodia's DNA and as the focal point of the United Nations Framework Convention on Climate Change (UNFCCC). As legislative, procedural, social, economic, and environmental conditions are bound to evolve, it is important to note that this guide can only provide an overview of the key features of CDM prospects in Cambodia. Project proponents should obtain the latest official documents and forms from the relevant government agencies, as new developments may emerge in this rapidly changing context.

Cambodia is an impoverished Southeast Asian country recovering from a long history of conflicts. Over the past decade, however, it has made rapid progress in liberalizing its economy and fostering international cooperation. As an early signatory of both the UNFCCC and the Kyoto Protocol, it has committed itself to global efforts to fight global warming. With the support of the international community, streamlined and transparent procedures have been developed for the approval of CDM projects. The Royal Government of Cambodia (RGC) sees the CDM as an opportunity to both reduce greenhouse gas emissions and achieve national sustainable development and poverty reduction objectives at the same time.

This guide is divided into nine chapters (including the introduction), supported by copies of detailed official documentation provided in the appendices.

- Chapter 2 provides a country profile of Cambodia, which includes essential social, economic, and political information.
- Chapter 3 summarizes CDM requirements and presents the CDM project cycle, from the early identification of a project to the trading of certified emission reduction (CER) credits.
- Chapter 4 discusses the technical potential for implementing CDM projects in Cambodia.
- Chapters 5 and 6 present information on CDM-related government authorities and project approval procedures and requirements.
- Chapter 8 gives an analytical summary of investment laws and restrictions, environmental laws, and other regulations applicable, respectively, to CDM energy projects and CDM forestry projects.
- Chapters 8 and 9 discuss financing and fiscal issues, as well as government incentives.

2. SOCIAL, ECONOMIC, AND POLITICAL INFORMATION

2.1 Country profile

Cambodia is located in Southeast Asia between latitudes 10° and 15° north and longitudes 102° and 108° east, and has a mainland area of 181,035 km², which measures approximately 580 km from east to west and 450 km from north to south. Its coastal zone, located in the southwest of the country, has a total length of approximately 435 km. The country's climate is governed by monsoon weather patterns and is characterized by two major seasons: a rainy season from May to early October and a dry season from November to April. The annual average temperature is 28°C, with a maximum average of 38°C in April and a minimum average of 17°C in January.

Table 2.1. Key country information

Administrative divisions	24 provinces, 183 districts, 1,609 communes	
Capital city	Phnom Penh	
Land area	181,035 km ²	
Population	12.8 million (2004 estimate)	
Population growth rate	1.81% per year (2004 estimate)	
Life expectancy at birth, years	Both sexes	56.3
	Males	54.4
	Females	58.3
Literacy rate in 2004 (%)	Both sexes	74.4
	Males	82.1
	Females	67.4
Households having electricity (%)	Total	15.1
	Urban	53.6
	Rural	8.6
Main fuel source for cooking (%)	Firewood	90.0
	Charcoal	5.3
	Kerosene	1.8
	Liquefied petroleum gas (LPG)	1.7
	Others	1.2

Source: NIS 2000, 2004.



Figure 2.1. Map of Cambodia

2.2 Social profile

The first post-war nationwide census, conducted in 1997, estimated the population of Cambodia in 2004 would be 12.8 million people (NIS 1999, 2004), with about 80 percent living in rural areas. The baby boom that occurred after the fall of the Khmer Rouge resulted in a very young present population, where almost 55 percent of people are under twenty years old. At a growth rate of 2.5 percent per annum, the population is expected to double within the next twenty years.

The UN's human development index (HDI)—which measures achievement in life expectancy at birth, adult literacy, educational enrolment, and gross domestic product (GDP)—ranks Cambodia at 130th out of 177 countries (UNDP 2004). Even though it is rated at the bottom of the medium-developed group of countries, Cambodia lags behind most of its Asian

neighbours in measured human development aspects. At 90 deaths per 1,000 births, the infant mortality rate is about three times as high as in East Asia. The country also has the highest level of HIV-Aids prevalence in the region, with some 150,000 cases. Life expectancy at birth for the general population is 53 years, compared with an average of 69 years in East Asia-Pacific countries. While the HDI of a country is correlated with per capita income, Cambodia has a worse HDI than its economic wealth would suggest (MOP 1999). This reflects generally low development in gender equity and human poverty. Additionally, there are wide disparities of development between Cambodians in urban and rural areas.

2.3 Economic profile

Cambodia has a GDP of US\$278 per capita, with agriculture accounting for more than half (table 2), and an industry concentrated on garment exports to the United States (US) contributing an additional 15 percent (World Bank 1999). The rapid growth of the garment sector has been impressive, given the destruction caused by war. Compared with just \$20 million in 1995, garment exports in 2002 exceeded \$1.4 billion (World Bank 2004). Agriculture and service sector employment increased at a modest 2 percent annually between 1998 and 2000, while industrial employment grew at 43 percent per year. Garments output grew at an annual rate of 64 percent per year between 1996 and 2000 (table 3). Foreign direct investment (FDI) accounted for half of fixed capital formation in the garment industry in 1998. FDI peaked in 1998/99 at over \$200 million (table 4). Cambodia has benefited from preferential treatment for accessing the US and European textile markets, which has attracted investors to the textile industry. However, the so-called garment quotas, which tied duty-free access to the US market in exchange for inspections by the International Labour Organization, came to an end in January 2005.

In addition, Cambodia's Angkor Wat World Heritage Site is becoming a significant source of foreign exchange through tourism. Thus, economic growth has primarily relied on garments and tourism. In the decade following the signing of the 1991 Paris Peace Accord, pricing, exchange rates, and trade were liberalized. The national currency, the riel, has remained relatively stable against the US dollar as a result of relatively prudent macroeconomic policies (table 6).

Table 2.2. Cambodia's GDP value by economic activity, in millions of riels at current prices^{*}

Year	1993 ^a	1994 ^a	1995 ^a	1996 ^a	1997 ^a	1998 ^a	1999 ^a	2000 ^a	2001 ^b	2002 ^b
Agriculture, fisheries, and forestry	3,070,700	3,231,433	4,017,120	4,068,004	4,474,740	5,248,438	5,559,994	5,191,310	5,161,677	5,231,799
Crops	1,168,838	1,312,953	1,994,369	1,941,289	2,052,219	2,456,504	2,585,033	2,429,393	2,384,925	2,250,420
Livestock and poultry	483,635	443,483	488,575	551,359	560,697	676,506	823,816	736,829	798,866	839,972
Fisheries	1,133,212	953,216	1,034,432	1,175,590	1,229,092	1,492,028	1,609,571	1,560,819	1,563,807	1,801,255

Table 2.2—Continued

Year	1993 ^a	1994 ^a	1995 ^a	1996 ^a	1997 ^a	1998 ^a	1999 ^a	2000 ^a	2001 ^b	2002 ^b
Forestry & logging	285,015	521,781	499,744	399,767	632,732	623,400	541,575	464,269	414,079	340,152
Industry	834,985	969,997	1,193,283	1,355,800	1,629,169	1,995,916	2,371,574	3,047,161	3,519,843	4,114,939
Mining	13,089	15,951	19,406	19,548	20,531	19,342	26,629	33,544	39,645	46,614
Manufacturing	560,480	624,034	758,212	909,340	1,156,069	1,534,039	1,736,919	2,238,690	2,556,362	2,969,456
Food, tobacco, & beverages	279,689	264,666	336,635	347,466	364,011	432,933	467,188	433,380	442,485	450,306
Textiles, apparel, & footwear	70,874	80,089	123,225	197,820	378,386	587,330	791,951	1,295,770	1,622,143	1,958,651
Wood, paper, & publishing	58,255	115,400	104,739	132,562	156,053	228,243	128,780	109,883	82,909	101,379
Rubber manufacturing	23,540	22,256	31,357	42,366	48,767	46,359	55,744	69,165	61,706	73,707
Other manufacturing	128,122	141,622	162,256	189,125	208,852	239,174	293,255	330,493	347,120	385,413
Electricity, gas, & water	24,085	30,834	39,501	40,111	40,655	46,539	43,478	43,331	56,750	75,786
Construction	237,331	299,178	376,164	386,802	411,914	395,996	564,547	731,596	867,086	1,023,083
Services	2,580,382	2,467,038	2,761,061	3,180,179	3,409,622	3,895,383	4,448,412	4,855,582	5,059,726	5,358,302
Trade	966,170	891,647	968,470	1,103,962	1,186,986	1,312,805	1,419,253	1,432,380	1,446,004	1,483,513
Hotels, restaurants	154,757	193,942	238,695	249,707	283,211	320,332	395,579	472,646	575,275	656,645
Transport & communications	376,247	400,190	449,002	532,916	569,935	637,975	778,927	877,650	947,193	959,963
Finance	23,770	27,385	76,526	86,541	97,806	100,334	129,390	174,845	128,370	84,720
Public administration	142,162	228,500	233,700	296,156	305,041	333,214	388,637	376,603	359,180	390,477
Real estate & business	622,245	451,532	483,374	537,250	600,696	732,404	763,622	826,020	852,464	880,115
Other services	295,032	273,841	311,294	373,647	365,948	458,319	573,005	695,438	751,240	902,870

Taxes on products, less subsidies	194,500	334,374	395,285	483,470	536,920	594,100	865,301	870,232	920,702	1,040,437
--	----------------	----------------	----------------	----------------	----------------	----------------	----------------	----------------	----------------	------------------

Table 2.2—Continued

Year	1993 ^a	1994 ^a	1995 ^a	1996 ^a	1997 ^a	1998 ^a	1999 ^a	2000 ^a	2001 ^b	2002 ^b
Less subsidies	2,300	4,466	11,915	15,030	6,300	14,200	11,900	31,182	31,744	51,000
Less finance services	14,945	17,217	72,964	63,192	123,063	124,475	114,305	154,780	118,059	78,280
Gross domestic product (GDP)	6,665,622	6,985,624	8,293,785	9,024,262	9,927,388	11,609,362	13,130,976	13,809,506	14,543,889	15,667,197

Source: NIS 2004.

*See table 6 for the Khmer riel (KHR) exchange rate against the US dollar.

^aRevised estimates.

^bPreliminary estimates.

Table 2.3. Cambodia's GDP growth rates by economic activity, in current prices

Year	1993/94 ^a	1994/95 ^a	1995/96 ^a	1996/97 ^a	1997/98 ^a	1998/99 ^a	1999/00 ^a	2000/01 ^b	2001/02 ^b
Agriculture, fisheries, and forestry	5.2%	24.3%	1.3%	10.0%	17.3%	5.9%	-6.6%	-0.6%	1.4%
Crops	12.3%	51.9%	-2.7%	5.7%	19.7%	5.2%	-6.0%	-1.8%	-5.6%
Livestock and poultry	-8.3%	10.2%	12.9%	1.7%	20.7%	21.8%	-10.6%	8.4%	5.1%
Fisheries	-15.9%	8.5%	13.6%	4.6%	21.4%	7.9%	-3.0%	0.2%	15.2%
Forestry and logging	83.1%	-4.2%	-20.0%	58.3%	-1.5%	-13.1%	-14.3%	-10.8%	-17.9%
Industry	16.2%	23.0%	13.6%	20.2%	22.5%	18.8%	28.5%	15.5%	16.9%
Mining	21.9%	21.7%	0.7%	5.0%	-5.8%	37.7%	26.0%	18.2%	17.6%
Manufacturing	11.3%	21.5%	19.9%	27.1%	32.7%	13.2%	28.9%	14.2%	16.2%
Food, beverages, & tobacco	-5.4%	27.2%	3.2%	4.8%	18.9%	7.9%	-7.2%	2.1%	1.8%
Textiles, wearing apparel, & footwear	13.0%	53.9%	60.5%	91.3%	55.2%	34.8%	63.6%	25.2%	20.7%
Wood, paper, & publishing	98.1%	-9.2%	26.6%	17.7%	46.3%	-43.6%	-14.7%	-24.5%	22.3%
Rubber manufacturing	-5.5%	40.9%	35.1%	15.1%	-4.9%	20.2%	24.1%	-10.8%	19.4%
Other manufacturing	10.5%	14.6%	16.6%	10.4%	14.5%	22.6%	12.7%	5.0%	11.0%
Electricity, gas, & water	28.0%	28.1%	1.5%	1.4%	14.5%	-6.6%	-0.3%	31.0%	33.5%
Construction	26.1%	25.7%	2.8%	6.5%	-3.9%	42.6%	29.6%	18.5%	18.0%

Year	1993/94 ^a	1994/95 ^a	1995/96 ^a	1996/97 ^a	1997/98 ^a	1998/99 ^a	1999/00 ^a	2000/01 ^b	2001/02 ^b
Services	-4.4%	11.9%	15.2%	7.2%	14.2%	14.2%	9.2%	4.2%	5.9%
Trade	-7.7%	8.6%	14.0%	7.5%	10.6%	8.1%	0.9%	1.0%	2.6%
Hotel and restaurants	25.3%	23.1%	4.6%	13.4%	13.1%	23.5%	19.5%	21.7%	14.1%
Transport & communications	6.4%	12.2%	18.7%	6.9%	11.9%	22.1%	12.7%	7.9%	1.3%
Finance	15.2%	179.4%	13.1%	13.0%	2.6%	29.0%	35.1%	-26.6%	-34.0%
Public administration	60.7%	2.3%	26.7%	3.0%	9.2%	16.6%	-3.1%	-4.6%	8.7%
Real estate & business	-27.4%	7.1%	11.1%	11.8%	21.9%	4.3%	8.2%	3.2%	3.2%

Table 2.3—Continued

Year	1993/94 ^a	1994/95 ^a	1995/96 ^a	1996/97 ^a	1997/98 ^a	1998/99 ^a	1999/00 ^a	2000/01 ^b	2001/02 ^b
Other services	-7.2%	13.7%	20.0%	-2.1%	25.2%	25.0%	21.4%	8.0%	20.2%
Taxes on products, less subsidies	71.9%	18.2%	22.3%	11.1%	10.6%	45.6%	0.6%	5.8%	13.0%
Less subsidies	94.2%	166.8%	26.1%	-58.1%	125.4%	-16.2%	162.0%	1.8%	60.7%
Less finance service charges	15.2%	323.8%	-13.4%	94.7%	1.1%	-8.2%	35.4%	-23.7%	-33.7%
Gross domestic product (GDP)	4.8%	18.7%	8.8%	10.0%	16.9%	13.1%	5.2%	5.3%	7.7%

Source: NIS 2004.

^aRevised estimates.

^bPreliminary estimates.

Table 2.4. Official external assistance to Cambodia, in billions of riel

Year	1995	1996	1997	1998	1999	2000	2001	2002
Total external financing	559.3	674.2	445.9	505.4	515.4	707.5	889.4	1,060.5
Budget support	108.6	149.9	96.0	1.5	4.4	113.2	54.3	178.2
Project aid	450.7	565.8	350.8	503.9	511.0	594.4	839.4	890.2

Source: NIS 2004.

Table 2.5. Cambodia's urban consumer price index (CPI)

Year	2001	2002	2003
CPI (urban)	102.36	104.80	106.25

Source: NIS 2004.

Table 2.6. Khmer riel (KHR) exchange rate against the US dollar

Year	1996	1997	1998	1999	2000	2001	2002	2003
Riels per dollar	2,666	3,029	3,824	3,832	3,879	3,935	3,948	3,999

Source: CDRI 2004.

Cambodia has been a member of the Association of Southeast Asian Nations (ASEAN) since 1999, which has had the effect of well integrating it into the regional economy. In addition, it is expected to be among the first of the least developed countries to join the World Trade Organization (WTO). Accession to the WTO has been ratified by Cambodia's National Assembly, which will pave the way for further integration into the global economy. The Royal Government of Cambodia sees WTO accession as a means to broaden export markets to further develop domestic industries, as the domestic market is too small to provide sustained demand for nationally made products. WTO membership will require Cambodia to pass and implement a modern legal and commercial framework conducive to international commerce (World Bank 2004). This is likely to include the following reforms: establishment of commercial courts, reform of import licensing, reform of customs and duties, implementation of the Trade-Related Investment Measures Agreement (TRIMS), implementation of trade-related property rights (TRIPS), implementation of the WTO Customs Valuation Agreement, and commitment to publish all legislation related to the WTO on the World Wide Web. Given the substantial magnitude of reforms needed, the World Bank has concluded that "Cambodia has chosen not to protect, but to compete." On one hand, accession to the WTO will allow Cambodia to access other members' markets on a most-favoured nation basis, but, on the other hand, it will intensify competition from foreign producers both domestically and globally. The challenge for Cambodia in the years ahead is to further liberalize its economy and integrate smoothly into the global economy by enacting and implementing legislation favouring private enterprise and strictly upholding the rule of law.

Both donors and the government have identified a number of constraints to economic development, including a poorly skilled labour force, inferior public infrastructures, and excessive administrative red tape (RGC 2001; ADB 2000b; World Bank 2000). A survey of over 500 private firms in five cities conducted by the World Bank further identified the leading constraints to private enterprise operation and growth to be corruption, bureaucratic costs, and weak rule of law. Recognising these issues, the Royal Government of Cambodia established the Special Inter-Ministerial Task Force on Trade Facilitation and Investment Climate (RGC 2004; World Bank 2004). A twelve-point plan outlines the government's commitment to rapidly improve the investment climate in Cambodia and facilitate trade, in line with its accession to the WTO (box 1). In particular, requirements for licensing, incorporation, and registration with the Commercial Register will be streamlined and reduced. A WTO-compatible flat-fee for service will allow private firms to pay once for all customs clearance processing.

Box 2.1. The Cambodian government's twelve-point plan to improve the investment climate

- Establish a cross-agency trade facilitation/investment climate reform team.
- Establish a system of transparent performance measurement including private sector monitoring.
- The trade facilitation process, including all licenses, procedures, and documents, will be reviewed to remove overlaps and unnecessary approval requirements. Following the re-engineering, a single administrative document will be used and other documents will be progressively eliminated.
- Introduce an overall risk management strategy to consolidate and rationalise all examination requirements of the different control agencies.
- A strategic review of the role of CamControl (Cambodia Import Export Inspection and Fraud Repression Department) will be launched to more productively deploy the organisation's unique knowledge of quality control processes and make optimised use of inputs and resources from other agencies, such as the Customs and Excise Department.
- A single-window process to manage trade facilitation will be piloted in the Port of Sihanoukville by December 2005. The trade facilitation process, once streamlined, will be automated by December 2005.
- The government will introduce a WTO-compatible flat fee for service, and the service will be defined by a service-level agreement. The fee structure will be public.
- Streamline the process and reduce the cost of incorporating with the Commercial Register, which is maintained at the Office of the Clerk of the Commercial Court, costs an average of US\$630, and takes 30 days.
- Streamline the notification process of the Ministry of Labour to start hiring employees, which costs \$250 and takes 30 days to complete.
- Harmonise registration for the VAT, income tax, and company registration using the same form and resulting in the same identifying number. This would enable a unique identifier and facilitate information sharing among agencies.
- Implement a national award to promote good corporate citizenship and governance in the private sector.
- Monitoring and reporting.

2.4 Political profile

After almost a century under the French Protectorate, Cambodia gained independence in 1953. From 1953 to 1970, the Kingdom was ruled by Prince Norodom Sihanouk, who later became King. This period, known as the “Sangkum Reastr Niyum,” is often remembered among Cambodians as a time of economic prosperity and security, when the construction of basic infrastructure was rapidly undertaken, including ports, airports, a nationwide road network, stadiums, railways, and power plants. Unfortunately, most of these were destroyed during the war or have become obsolete.

In April 1975, the capital city of Phnom Penh fell to the Khmer Rouge after a five-year civil war. At the same time, American troops withdrew from Saigon. Under the leadership of the infamous Pol Pot, Cambodia was turned into a huge labour camp. This period, known as Democratic Kampuchea, extended from 1975 to 1979, during which time the Khmer Rouge oversaw the mass extermination of 1.5 million Cambodians (Kiernan 1998). All cities were emptied as the population was relocated for agricultural work. A third of the population was killed, including most of the educated. The Khmer Rouge left indelible scars on contemporary Cambodian society, including psychological trauma and societal violence.

In 1991 the political factions in Cambodia signed the Paris Peace Accord, which laid the groundwork for one of the most comprehensive society-rebuilding operations in the history of the United Nations. The year 1992 marked the arrival of the United Nations Transitional Authority (UNTAC), which governed Cambodia until the general parliamentary elections in 1993.

A new constitution was promulgated in 1993, with King Sihanouk as a symbol of unity of the restored Kingdom of Cambodia. In this parliamentary monarchy, political powers are vested in the National Assembly and the government. After the elections, with the support of the international community, Cambodia rapidly moved to liberalize its economy, with a GDP that grew at an approximate 6 percent per year between 1993 and 1997.

Following elections held in July 2003, a coalition government of the two main political parties, the Cambodian People's Party (CPP) and the Front Uni National pour un Cambodge Indépendant Pacifique et Coopératif (FUNCINPEC), was formed. Prime Minister Hun Sen is the head of the Royal Government of Cambodia (RGC), while Prince Ranaridhh acts as president of the National Assembly. King Norodom Sihamoni succeeded his father, King Sihanouk, as head of state and was crowned as the new sovereign in October 2004.

The 1993 Constitution is the supreme law of Cambodia; all laws and policies must conform to it. The preamble of the constitution defines Cambodia's political system as "a multiparty liberal democratic regime guaranteeing human rights and the respect of law." The Cambodian people elect their deputies directly, that is, the members of the National Assembly, which has primary legislative powers and the right to approve laws.¹ The constitutionality of these laws is safeguarded by the Constitutional Council. The government is formed by a two-thirds majority of the National Assembly. The Prime Minister leads the RGC, which is the executive branch in charge of implementing national policies and programmes. The constitution was amended in 1999 to establish the Senate as an additional legislative body. It has the power to review legislation and to compel reconsideration by the National Assembly. The legislative, executive, and judicial branches of government are separate. Furthermore, the King acts as the head of state and reigns as the symbol of unity of the kingdom but does not rule or govern the nation (figure 2.2).

Table 2.7. Political regimes of Cambodia from 1863 to present

1863–1953	French Protectorate
-----------	---------------------

1. See table 7 for length of terms of office.

1953–1970	Kingdom of Cambodia: “Sangkum Reastr Niyum” with Prince Norodom Sihanouk as head of state. <i>Constitutional monarchy.</i>
1970–1975	Khmer Republic: established through a coup d’état with General Lon Nol as president. <i>Republic.</i>
1975–1979	Democratic Kampuchea: Khmer Rouge led by Salot Sar (Pol Pot). <i>Communist.</i>
1979–1989	People’s Republic of Kampuchea: led by Heng Samrin. <i>Socialist.</i>
1989–1993	State of Cambodia and the United Nations Transitional Authority in Cambodia. <i>Socialist, followed by UN administration from 1992.</i>
1993–present	Kingdom of Cambodia. The Royal Government of Cambodia is headed by Prime Minister Hun Sen. King Norodom Sihamoni reigns but does not rule. <i>Constitutional monarchy.</i>

Table 2.8. Length of terms of office for political figures

Prime Minister	Members of the National Assembly	Senators
Elected by the National Assembly. Five years per term. No limit to re-election	Five years per term. No limit to re-election	Undetermined length. Already six years. No limit to re-election

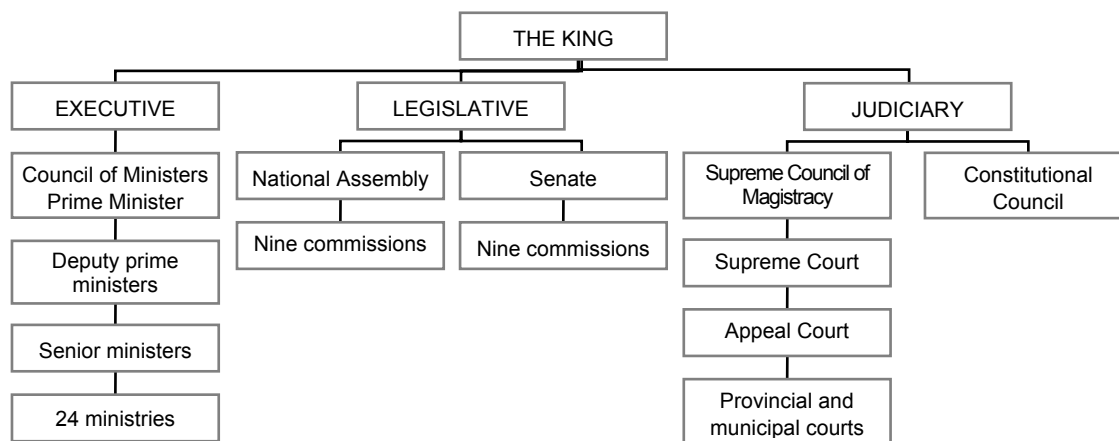


Figure 2.2. Cambodia's public governance structure

3. THE CDM PROJECT CYCLE

Before reading country-specific information related to CDM project development and implementation, it is important to understand some of the CDM terminologies and rules. The CDM has its own specific modalities and procedures, and this chapter explains the basics of them by going through CDM project cycle.²

3.1 Overview of the Clean Development Mechanism

The CDM is a mechanism where Annex I countries (see appendix I) with a specific obligation to reduce a set amount of greenhouse gas (GHG) emissions by 2012 under the Kyoto Protocol assist non-Annex I countries to implement project activities to reduce or absorb (sequester) at least one of six GHGs (see box 3.1 and figure 3.1). Non-Annex I countries are signatories and ratifiers to the Kyoto Protocol; however, they do not adhere to reduction targets stipulated under the protocol. The reduced amount of GHGs becomes credits called **certified emission reductions (CERs)**, which Annex I countries can use to help meet their emission reduction targets under the protocol (UNFCCC 1997).³

Box 3.1. The six greenhouse gases addressed under the Kyoto Protocol

Source: UNFCCC 1997.

The six GHGs are not equal in terms of global warming potential (GWP), which measures the relative radiative effect of GHGs compared to CO₂. For example, one tonne of methane has a GWP as potent as 21 tonnes of CO₂.

<u>Greenhouse gas</u>	<u>Global warming potential</u>
1. Carbon dioxide (CO ₂)	1
2. Methane (CH ₄)	21
3. Nitrous oxide (N ₂ O)	310
4. Hydrofluorocarbons (HFCs)	140–11,700
5. Perfluorocarbons (PFCs)	6,500–9,200
6. Sulfur hexafluoride (SF ₆)	23,900

- Readers are encouraged to refer to the official documents of the United Nations Framework Convention on Climate Change (UNFCCC) for further details. All the documents are available at <http://cdm.unfccc.int>. The foundations of modalities and procedures for the CDM were established in the Marrakesh Accords (UNFCCC 2001). In addition, the CDM Executive Board regularly meets and makes decisions on details and clarifies rules set in the accords. There are many textbooks available on the CDM. Following are some of the publications recommended: *CDM and JI in Charts, ver. 2.1* (MOE and IGES 2005) will facilitate a basic understanding of the CDM. Readers are also suggested to read the *CDM Manual* for project developers and policy makers (Ministry of the Environment, Japan, Global Environment Centre Foundation, Pacific Consultants Co., Ltd., 2004) and *CDM Methodologies Guidebooks* (Ministry of the Environment, Japan, Global Environment Centre Foundation, Climate Experts, Ltd., November 2004).
- The CDM is one of the Kyoto mechanisms introduced to supplement domestic actions to reduce GHG emissions levels in Annex I countries. Under the UNFCCC rulebook, there is no legal restriction for Annex I countries to limit the usage of CERs or any other credits acquired under the Kyoto mechanisms to meet their reduction targets, except for the CERs from carbon sink activities (UNFCCC 2001b, 2). However, each Annex I country may introduce its own rule to ensure that sufficient efforts are made domestically.

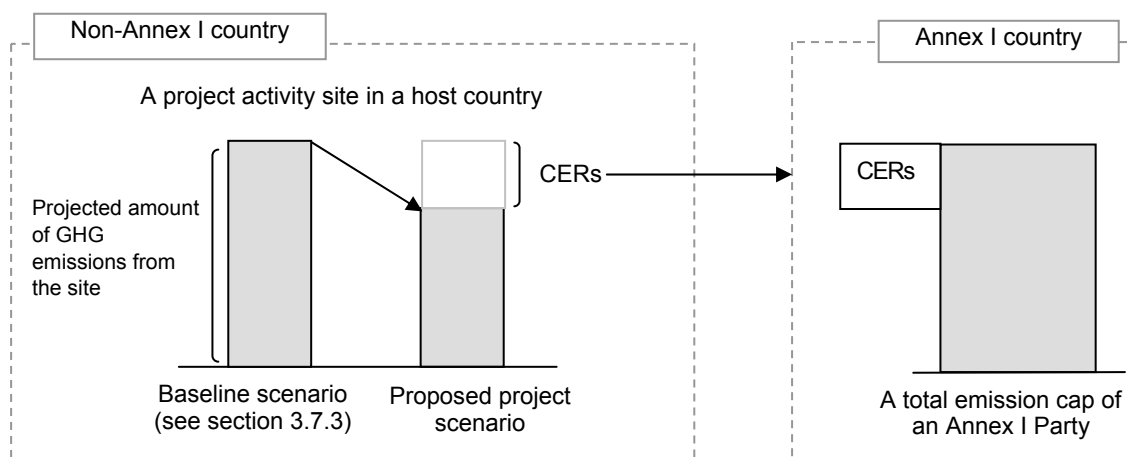


Figure 3.1. Diagram of how the CDM functions

Source: MOE Japan and IGES 2005.

3.2 Eligible project activities

CDM project activities must result in reducing or absorbing (sequestering) GHGs that are *real and measurable* and *would not have occurred in the absence of the proposed project activity* (**additionality** (UNFCCC 2001b, 20). In other words, to qualify for credits, a project activity must demonstrate that GHG emissions were reduced against the “baseline scenario,” a representation of GHG emissions under normal circumstances.

Another important aspect of the CDM is that proposed CDM project activities must demonstrate their contributions to environmental integrity and the host country’s sustainable development goals (UNFCCC 2001b, 20). Reducing GHG emissions alone may not suffice to meet this requirement. Many host country governments provide information on their prerequisites, often referred to as “sustainable development criteria” (see chapter 5 for more details).

In addition, other disqualifications for use of the CDM are:

- emission reductions from nuclear facilities (UNFCCC 2001b, 20),
- a diversion of official development assistance (ODA) from Annex I countries (UNFCCC 2001b, 20), and/or
- any other type of sequestration activities apart from afforestation and reforestation (UNFCCC 2001b, paragraph 7(a), 22).

Table 3.1 summarizes the possible types of CDM project activities and some examples. Country-specific information on potential CDM project activities is covered extensively in chapter 4.

It is important to note that existing or newly built facilities already under commission can still be registered as CDM project activities, provided the following conditions are met (UNFCCC, 2001b, paragraph 13, 23; 2003a, paragraph 1[c], 5):

- the proposed project activity started between January 1, 2000, and the date the first CDM project activity was registered (November 18, 2004);

- the project activity is submitted for registration to the CDM Executive Board, the supervisory body of the CDM, before December 31, 2005; and
- proof is given for the CDM being considered at the project’s design stage.

3.3 Classification of CDM project activities

CDM project activities can be classified in two main areas: (1) GHG emission reductions and (2) sequestration (sink). Within these two main categories, there are sub-categories based on project size (figure 3.2).

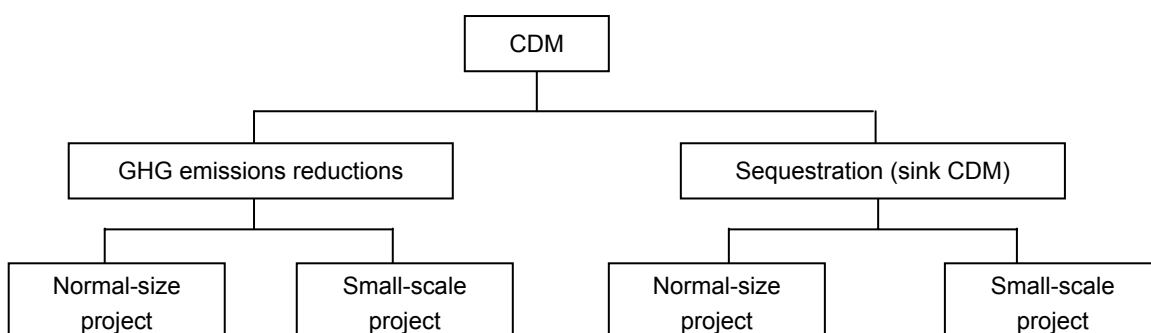


Figure 3.2. Classification of sub-categories of CDM project activities

Table 3.1. List of project categories eligible under the CDM

		Sectoral scope	Examples	
1	Emission reductions activities	Energy industries (renewable/non-renewable sources)	Renewable energy	Wind power, solar photovoltaic (PV), hydro, geothermal
			Non-renewable energy	Combined heat and power (CHP); fuel switching from coal or fuel oil to natural gas
		Energy distribution	Electricity	Transmission and distribution lines
		Energy demand	Energy efficiency	High-efficiency equipment and lighting
		Manufacturing industries	Energy efficiency	High-efficiency equipment
Fuel switching	From coal to natural gas; clean coal technology			
5		Chemical industries	Process change	Nitrous oxide abatement

		Sectoral scope	Examples	
6		Construction	Material substitution	Energy-saving measures; shorter transport distance for trucks
7		Transport	Energy efficiency	Improved vehicle efficiency, transit expansion
			Fuel substitution	Biofuels, natural gas fuels
8		Mining/mineral production	Fuel substitution	Coal mine methane recovery
9		Metal production	Energy efficiency	Improved process efficiency
			Process change	Dry coke quenching
10		Fugitive emissions from fuels (solid, oil, and gas)	Fuel substitution	Recovery and utilization of gas from oil wells
11		Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride	HFCs	Incineration of HFC-23 waste streams
12		Solvent use	Material substitution	Replacement with less GHG-emitting materials
13		Waste handling and disposal	Fuel substitution	Landfill gas recovery, wastewater treatment, animal waste treatment
14		Afforestation and reforestation	Afforestation	
			Reforestation	
15		Agriculture		Methane production avoidance from biomass decay

Source: UNFCCC 2005a; Pembina Institute 2003; Houghton et al. 1997; Shimizu Corporation 2004; editor's contribution.

3.4 Small-scale CDM projects

Although the CDM is devised to foster the sustainable development of host countries, developing small-scale CDM project activities, which are known to be beneficial to the sustainable development of local communities, are often burdened with high costs for low returns. In order to leverage the development of small-scale CDM project activities, the UNFCCC introduced fast-track modalities and procedures with some preferential treatment. A project activity can be qualified as small-scale CDM if it meets one of the three following conditions (UNFCCC 2001b, paragraph 6[c], 21):

- *Type I*: renewable energy project activities with a maximum output capacity equivalent to up to 15 megawatts (or an appropriate equivalent)

- *Type II*: energy-efficiency improvement project activities which reduce energy consumption on the supply and/or demand side by up to the equivalent of 15 gigawatt-hours per year
- *Type III*: other project activities that both reduce anthropogenic emissions by sources and directly emit less than 15 kilotonnes of CO₂ equivalent (CO₂e) annually

Small-scale CDM project activities benefit from a number of privileges, which allows them to speed up their registration process. The details of the special treatment given to small-scale projects can be found in the overview of the CDM project cycle (section 3.7).

One special feature applicable only to small-scale CDM project activities is bundling and debundling. **Bundling** is to cluster projects that are too small to be attractive for investment, even with the additional CER revenues. By using the bundling scheme, small projects can become cost-effective and thus become sufficiently attractive with CER revenues. Many community-based projects (e.g., small hydropower), as well as projects for small- or medium-size enterprises, with significant contribution to local sustainable development often face difficulties in attracting sufficient interest for investment without a substantial level of public support. These projects can use the bundling scheme to improve their overall financial viability. There is no limitation to the number of projects that can be bundled under the current UNFCCC rule, as long as the total size of the bundled project activity does not exceed the ceiling set for small-scale CDM project activities. While it is possible to bundle small projects together, however, large projects are not allowed to be **debundled** to smaller project sizes well within the range of small-scale CDM rules (box 3.2), in order to avoid anyone taking advantage of the CDM's fast-track and cost-effective scheme for small-scale CDM projects. While the bundling scheme may appear to be an ideal solution for small projects beneficial to sustainable development, there also exists a number of difficulties involved with the practice, for example, in developing a plan for monitoring all bundled project activities.

Box 3.2. How to determine if a project can be considered debundled

The UNFCCC (UNFCCC 2002, 27) recognizes any small-scale activity as being eligible for being debundled from a large project activity if it is already registered or expected to be registered as a small-scale CDM project activity, and if it is

- with the same project participants,
- in the same project and technology/measure category,
- registered within the previous two years, and
- whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point.

3.5 Forestry and the CDM

The CDM qualifies only afforestation and reforestation (A/R) project activities as credible sink activities under the current ruling, and they are defined as follows (UNFCCC 2001a, paragraph 1 (b), (c), 58):

- **Afforestation** is the direct, human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding, and/or the human-induced promotion of natural seed sources.

- **Reforestation** is the conversion of land from being non-forested to forested that was previously forested but then cleared. For the first commitment period, reforestation activities will be limited to reforestation occurring on this type of land that was not forested before December 31, 1989.

For non-Annex I Parties to host afforestation and/or reforestation (A/R) CDM project activities, in addition to the general participation requirements in the *CDM Modalities and Procedures* (annex to Decision 17/CP.7), the DNA of the host party needs to define and report to the CDM EB on the following thresholds (UNFCCC 2003, paragraph 7–8, 17):

- A single minimum tree crown cover value between 10 and 30 percent
- A single minimum land area value between 0.05 and 1 hectare
- A single minimum tree height value between 2 and 5 metres

The UNFCCC defines small-scale afforestation and reforestation project activities as “those that are expected to result in net anthropogenic greenhouse gas removals by sinks of less than 8 kilotonnes of CO₂ per year and are developed or implemented by low-income communities and individuals as determined by the host party” (UNFCCC 2003, paragraph 1[I], 16). Project developers should be aware that even if a small-scale A/R project activity results in actually removing more than 8 kilotonnes of CO₂e per year, no issuance of credits is allowed for any excess removals that take place.

Although the project cycle is similar to the one for mitigation activities, A/R CDM project activities need to follow a different set of rules under the UNFCCC. Some of the notable differences include the manner in which GHG emissions sequestration is calculated and CERs are issued (see section 3.7.3 on setting a project baseline).

3.6 Credits and crediting periods

One of the main features of CDM project activities is that they are able to generate tradable emission credits (CERs).⁴ Table 3.2 summarizes the different options for the crediting period and types of credits to be issued for GHG emissions reduction and A/R project activities.

Table 3.2. Credits and crediting period for CDM project activities

	GHG mitigation project activities	A/R project activities
Crediting periods	i. 7 years with the option of renewing twice (total crediting period = 21 years)	i. A maximum of 20 years with an option of renewing twice (total crediting period = 60 years)
	ii. 10 years without the renewal option	ii. A maximum of 30 years without the renewal option

4. Non-Annex I Party participants can sell or transfer the credits to Annex I Party participants. However, non-Annex I Party participants are not allowed to freely trade the credits in the emissions trading market.

Types of credits	CERs	i. Temporary CERs (tCERs): The net GHG removals by sinks achieved by the project activity since the project starting date, which should be replaced by other Kyoto Protocol credits before the end of the subsequent commitment period
		ii. Long-term CERs (lCERs): The net GHG removals by sinks achieved by the project activity during each verification interval

Sources: UNFCCC 2001b, paragraph 49, 37; UNFCCC 2003, paragraph 23, 1 and paragraph 38, 24.

The renewal of crediting period requires the review of baseline scenarios at each renewing time for both GHG mitigation and sequestration project activities. Each Annex I party can carry over a maximum 2.5 percent of its assigned amount to the next commitment period (envisaged to start from 2013).⁵ In addition, there is a ceiling placed on the credits from A/R CDM project activities, at least for the first commitment period, stipulated as “not to exceed 1 percent of base year emissions of that [Annex I] party, times five” (UNFCCC 2001b, paragraph 7[b], 22).

The calculation of net GHG removals by A/R CDM project activities is described in the baseline section of this chapter (3.7.3).

3.7 Overview of the CDM project cycle

In December 2001, negotiators worked out the detailed modalities and procedures of the international climate change policy regime, including the rules and regulations of the CDM, which were formulated as the Marrakesh Accords.⁶ The CDM Executive Board was established as the UNFCCC secretariat to oversee the CDM process. In order to be registered as a CDM project activity, project proponents need to go through the steps detailed in figure 3.3.

3.7.1 Project formulation

The first step in CDM project formulation is to identify a project activity and to examine whether or not it is eligible for the CDM. It is also important to collect information on the designated national authorities (DNA) of concerned Parties and their requirements and procedures for project approval. Since the CDM is a mechanism designed to contribute to the sustainable development of non-Annex I countries, information from the DNA of the host country becomes crucial in determining the eligibility of the proposed project under the CDM. Some countries specify a list of sustainable development criteria and some DNAs have a list of the CDM priority project types.

5. The total amount of units an Annex I party will be assigned, calculated by its base-year emissions minus its emissions reduction target.

6. The Marrakesh Accords were signed at the Conference of Parties (COP) at its seventh session, organized at Marrakesh, Morocco, in 2001. The accords adopted many operational rules of the Kyoto Protocol and established the modalities and procedures for the CDM (UNFCCC 2001b).

Project developers should also identify at this stage whether their proposed project activity is normal size or small scale, as different conditions apply to benefit small-scale project activities (UNFCCC 2002, paragraph 9, 20), including the following:

- A simplified project design document (PDD) (including the additionality test)
- Simplified, predefined baseline methodologies provided by category
- Simplified monitoring plans
- The possibility to hire the same operational entity for validation, verification, and certification
- Lower levies by the UNFCCC to cover administrative expenses and registration fees (UNFCCC 2002, paragraph 21, 220)
- Half the normal registration evaluation period (the period for normal projects is eight weeks upon the date of receipt of the request for registration) (UNFCCC 2002, paragraph 24, 23)

Many project developers also begin with searching for potential buyers for CERs. In order to facilitate discussions, they produce a summary of the project description, known either as project idea note (PIN) or project concept note (PCN). Some donor organizations purchasing CERs have their own standardized form for application, while others may use the PIN form of the World Bank or the PCN form provided by host governments.

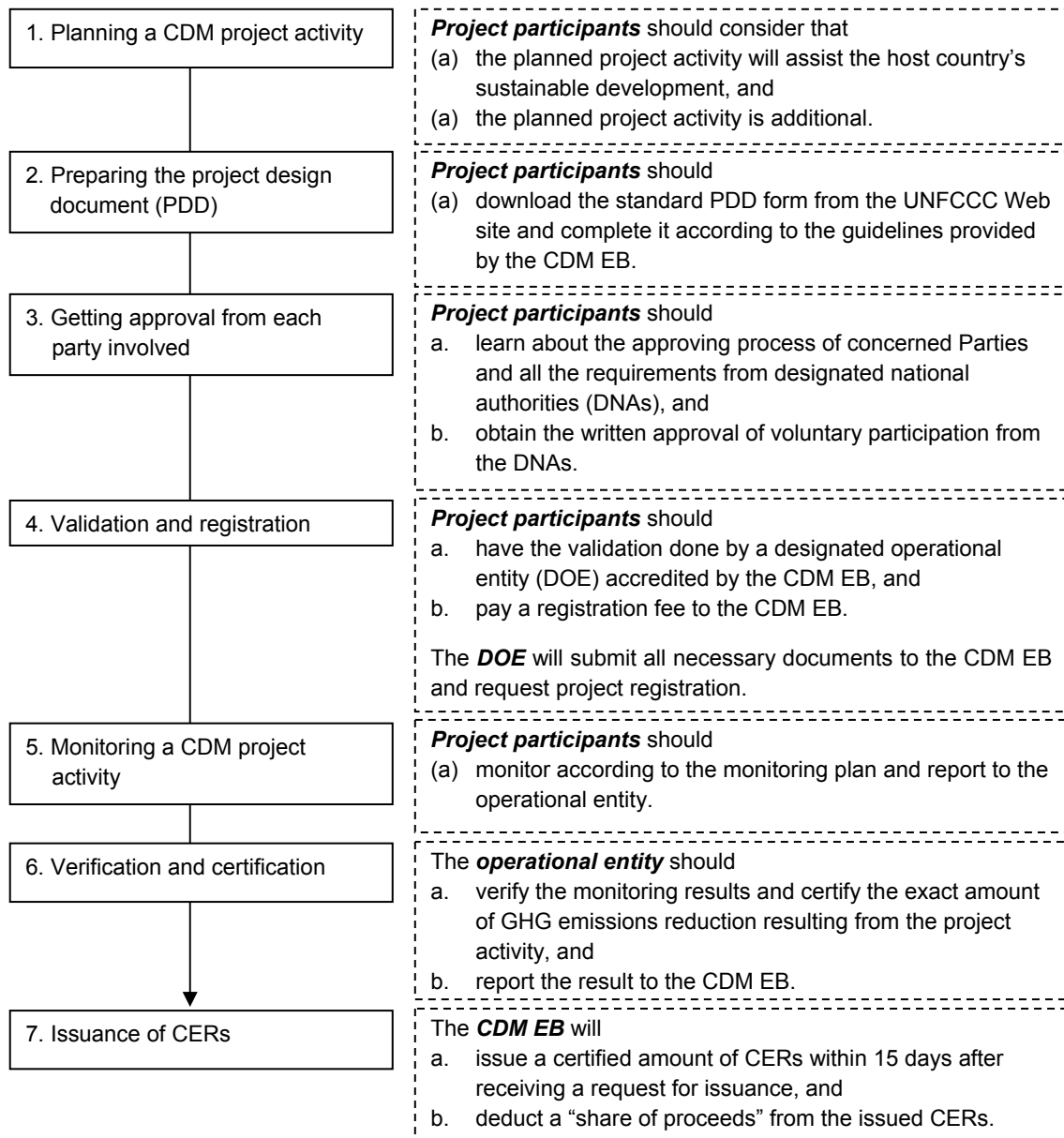


Figure 3.3. Overview of the CDM project cycle

3.7.2 The project design document

The project proponent needs to prepare a project design document (PDD) in order to be registered as a CDM project activity. The PDD presents information on the essential technical and organizational aspects of the project activity and is a key input into the validation, registration, and verification of the project, as required under the Marrakesh Accords. Currently, different forms are available for the following project categories:

- Normal-size GHG emissions reduction project activities
- Small-scale GHG emissions reduction project activities (applicable to all except for afforestation/reforestation)
- Afforestation/Reforestation project activities

The common components of the PDD forms include (UNFCCC 2001b, Appendix B, 43–45):⁷

- A general description of the project activity
- A baseline methodology
- The duration of the project activity/crediting period
- Justification for additionality
- Monitoring methodology and plan
- Calculation of GHG emission by sources
- Environmental impacts
- Stakeholder comments

3.7.3 The baseline

Establishing a “baseline scenario” (or commonly referred to as “baseline”) the crucial part of designing a CDM project activity. It sets the “base” from which the amount of total GHG emission reductions and credits is calculated. The baseline scenario describes what the current level of GHG emissions is prior to introducing the proposed CDM project activity. As shown in figure 3.4, whatever the amount of emissions reduced or sequestered within a given project boundary during the crediting period will be accounted as the direct emissions reduction.

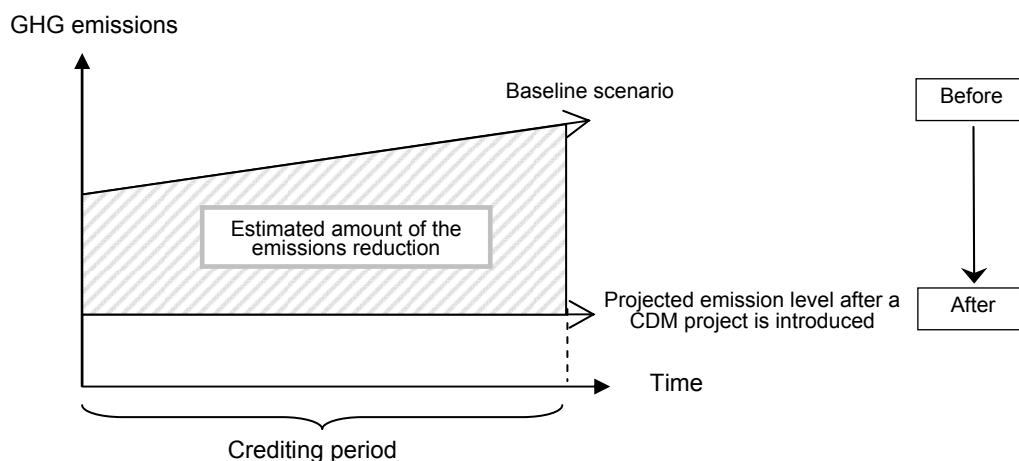


Figure 3.4. Baseline scenario

For normal-size GHG mitigation project activities, the Marrakesh Accords allow the baseline for GHG mitigations to be established by one of the three approaches below (UNFCCC 2001b, paragraph 48, 37).⁸

1. Existing actual or historical emissions
2. Emissions from a technology that represents an economically attractive course of action, taking into account barriers to investment

7. This guidebook briefly touches on the concepts of baseline and additionality; however, complete guidelines and details of requirements for PDDs are available at <http://cdm.unfccc.int>.

8. The document is available at <http://cdm.unfccc.int/Reference/COPMOP>.

3. The average emissions of similar project activities undertaken in the previous five years, under similar social, economic, environmental, and technological circumstances, and whose performance is among the top 20 percent of their category

There are various methods to calculate baseline scenarios and GHG emission reductions. Project developers can propose a new methodology to establish the baseline scenario or use the standardized methodology (*consolidated methodologies*) or already approved methodologies. As of June 2005, there are three consolidated methodologies and 22 approved methodologies (see appendix II).

Emission reductions and baselines are determined by setting a project boundary that encompasses “all anthropogenic GHG emissions by sources under the control of the project participants that are significant and reasonably attributable to the CDM project activity” (UNFCCC 2001b, paragraph 52, 37). Project developers need to check whether there is a “leakage” in the proposed project activity. *Leakage* refers to GHG emissions outside the project boundary that are “measurable” and “attributable” to the project activity (UNFCCC 2001b, paragraph 51, 37). The total GHG emission reductions need to be netted out of the leakage.

For small-scale project activities, the UNFCCC provides the simplified baseline methodologies to relieve project developers from the burden of elaborating baselines and the associated high costs (see appendix III).

For A/R CDM project activities, project proponents can choose one of the following three approaches (UNFCCC 2001b, paragraph 22, 21):

- i. “Existing or historical, as applicable changes in carbon stocks in the carbon pools within the project boundary”⁹
- ii. “Changes in carbon stocks in the carbon pools within the project boundary from a land use that represents an economically attractive course of action, taking into account barriers to investment”
- iii. “Changes in carbon stocks in the pools within the project boundary from the most likely land use at the time the project starts”

The calculation of net GHG removals by sinks is shown in figure 3.5.

9. Carbon pools are above-ground biomass, below-ground biomass, litter, dead wood, and soil organic carbon (UNFCCC 2003, paragraph 1[a], 16).

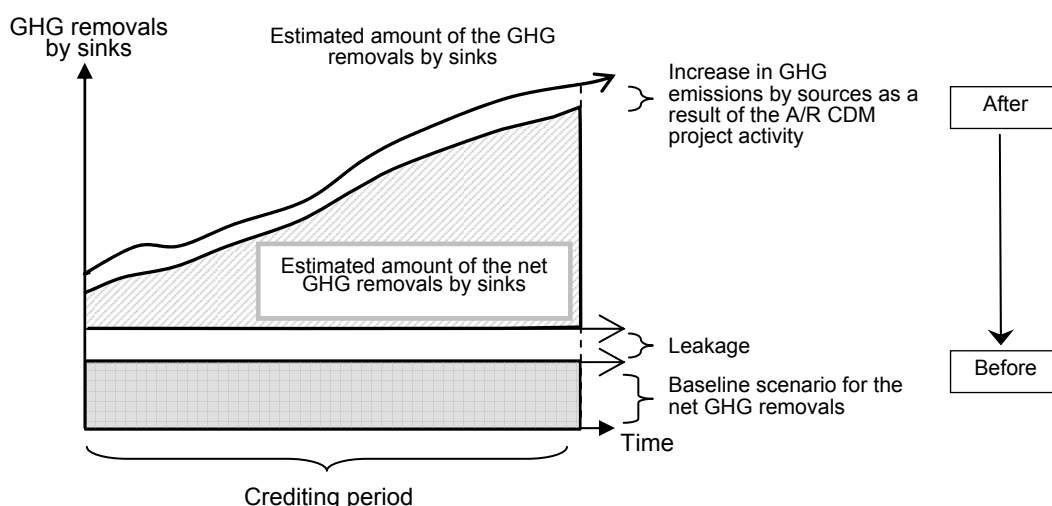


Figure 3.5. Baseline scenario and the net GHG removals by sinks

Figure 3.6 explains the basic method for calculation of net GHG removals by A/R CDM project activities.

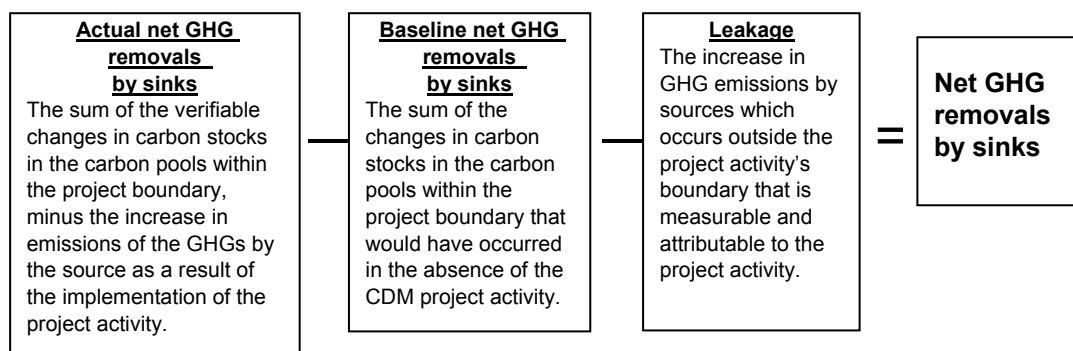


Figure 3.6. Calculation of net GHG removals by sinks

Source: UNFCCC 2003, paragraph 1(f), 16.

For small-scale A/R CDM project activities, the CDM EB will develop simplified baselines for the following activities (UNFCCC 2004, appendix B, paragraph 4, 38):

- a. Grassland to forested land
- b. Cropland to forested land
- c. Wetland to forested land
- d. Settlements to forested land

3.7.4 Additionality

Additionality is another important aspect of the CDM. Additionality is the justification of the proposed CDM project activity not being the baseline scenario. The CDM Executive Board introduced the **additionality tools** (figure 3.7) at its 16th meeting (UNFCCC 2004b). It is not mandatory to use the additionality tools, but it is highly recommended.

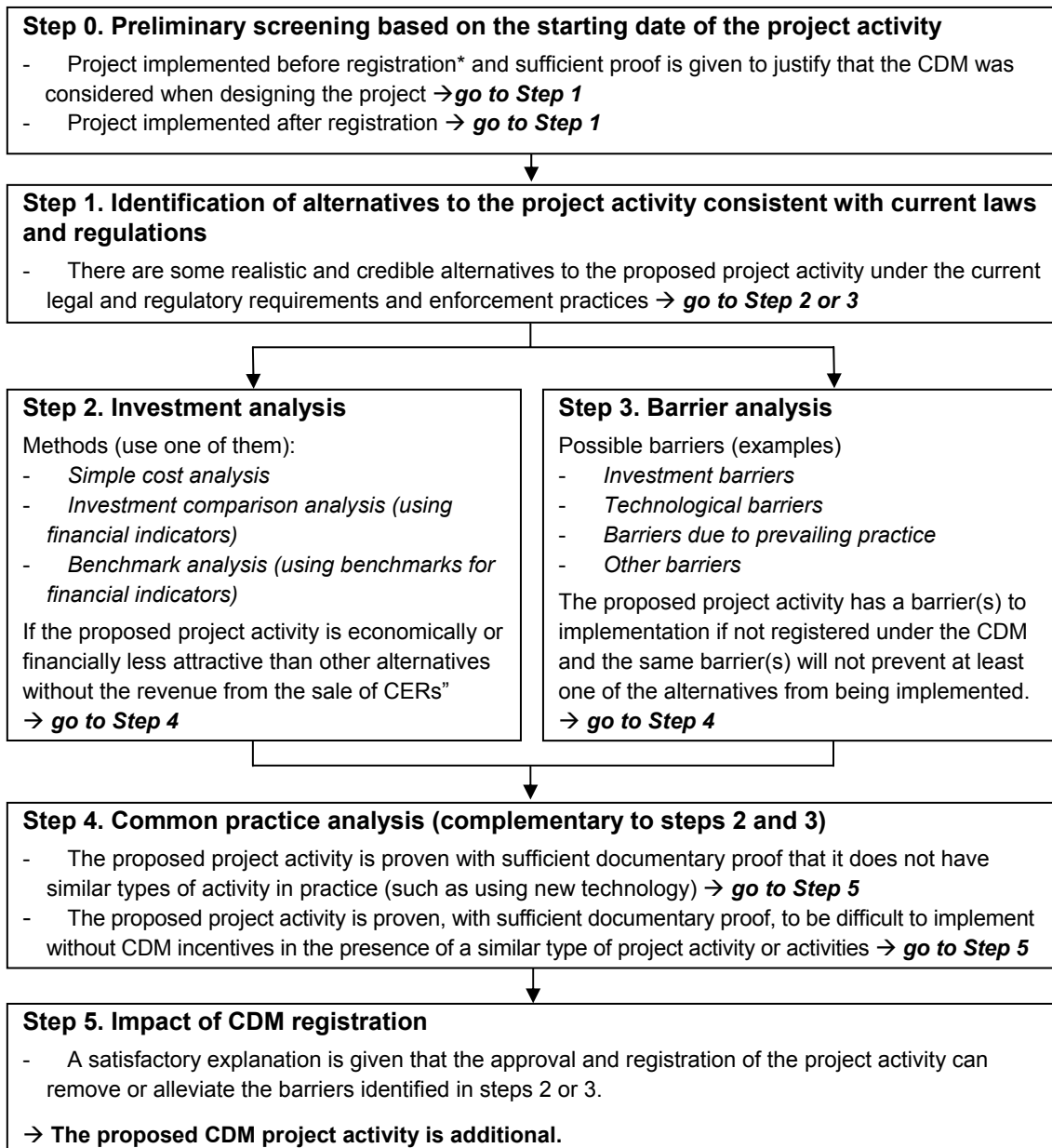


Figure 3.7. Project assessment using the additionality tools

*Projects commissioned after January 1, 2000, can be still considered as being a CDM project.

For small-scale project activities, the project proponent needs to justify its additionality using at least one of the barriers listed in table 3.3.

Table 3.3. Criteria for justifying additionality for a small-scale CDM project activity

Investment barrier	A financially more viable alternative to the project activity would have led to higher emissions.
Technological barrier	A less technologically advanced alternative to the project activity involves lower risks, due to the performance uncertainty or low market share of the new technology adopted for the project activity, and so would have led to higher emissions.
Barrier due to prevailing practice	Prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions
Other barriers	Without the project activity—for another specific reason identified by the project participants, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies—emissions would have been higher.

Source: UNFCCC 2002, appendix B, attachment A, 26; UNFCCC CDM EB 7, 19.

3.7.5 Gaining host country approval

CDM project proponents need to obtain written approval from the DNA of the participating country in order to have their project registered under with the CDM EB. In general, “participating countries” means both Annex I and non-Annex I countries. However, a project can still be registered as a CDM project without having an Annex I country participating at the time of registration (UNFCCC CDM EB 2005a, paragraph 57, 8). This type of project is called a “unilateral” CDM project as opposed to a “bilateral” CDM project (having both Annex I and non-Annex I countries involved). However, this does not mean that the unilateral project is completely exempted from submitting the approval letter from the DNA of an Annex I country. When a project developer of a unilateral project eventually finds a buyer of the CERs from an Annex I country and requests the CDM EB to transfer the CERs to the partner, the CDM EB still requires the submission of an approval letter from the participating Annex I country. The approval letter should contain the following statements according to the requirements set under the UNFCCC (UNFCCC 2001b, paragraph 29, 32; UNFCCC CDM EB 2004c, 1):

- The country has ratified the Kyoto Protocol.
- The DNA confirms that the proposed CDM project activity is a result of voluntary participation.
- (For the hosting country only.) The proposed CDM project activity contributes to sustainable development.

Although each participating party to the CDM needs to set up a DNA for the CDM and indicate their approving procedures and requirements, some countries are still under the process of establishing and formulating those rules. It is important to note that some countries require a project concept note (PCN) or PDD for a DNA approval.

3.7.6 Validation and registration

Validation refers to the independent evaluation of the PDD against the UNFCCC's requirements (CDM Modalities and Procedures, paragraph 34, p. 34). The CDM Executive Board authorizes third-party agencies, known as designated operational entities (DOEs) to validate PDDs (box 3.4). Validation includes checking the following points:¹⁰

- The requirements of participation are satisfied (i.e., being a voluntary participation, having a DNA already established, and being a party to the Kyoto Protocol).
- Stakeholder comments have been invited, summarized, and taken into account.
- Environmental impact analysis or assessment has been conducted according to the requirements of the host country.
- The GHG emissions reduction is additional.
- Approved baseline and monitoring methodologies have been used or a new methodology has been submitted.
- The proposed project activity is in accordance with all other requirements and decisions by the COP/MOP and the CDM EB.

Box 3.3. Designated operational entities

A DOE is a third-party agency that is allowed to conduct validation or verification and certification of a CDM project activity (for details on verification and certification, see section 3.7.8). For normal-size project activities, a different DOE is required to perform validation and verification/certification. However, upon request the CDM EB may allow a single DOE to conduct all required activities (UNFCCC 2001b, paragraph 27[e], 32), an allowance normally permitted to only small-scale project activities (UNFCCC 2002, paragraph 9, 20). The list of DOEs is available online at <http://cdm.unfccc.int/DOE/list>. Readers should be aware that DOEs can only perform validation or verification/certification for project activities under the authorized sectoral scope (see <http://cdm.unfccc> for the list of types of sectoral scope).

The DOE prepares a validation report and submits it to the CDM EB, together with the PDD, approval letter from the host country and an explanation on how comments are taken into account in order to apply for registration. The registration requires payment of an administrative fee set according to the project activity size (see table 3.4). Upon confirmation of the receipt of the registration fee and completed documents, the CDM EB puts the validation report and PDD of the proposed project activity on the UNFCCC Web site for public comment. Unless otherwise arranged through a request for review from the participating parties or at least three members of the CDM EB, the proposed project activity is registered within eight weeks for normal-size CDM project activities and four weeks for small-scale CDM project activities (UNFCCC 2001b, 34–36).

¹⁰DOEs are provisionally accredited and designated by the CDM EB until confirmed by the Conference of Parties/Meeting of the Parties to the Kyoto Protocol (COP/MOP).

Table 3.4. Registration fees for CDM projects

Volume of CERs generated annually (tonnes of CO ₂)	Fee (USD)
< = 15,000	5,000
> 15,000 and < = 50,000	10000
> 50,000 and < = 100,000	15000
> 100,000 and < = 200,000	20000
> 200,000	30000

Source: UNFCCC CDM EB 2002.

3.7.7 Monitoring a CDM project activity

Project proponents are required to monitor the actual emissions reductions or sequestration that take place when implementing the project. Monitoring includes “collection and archiving of all relevant data necessary for determining the baseline, measuring anthropogenic emissions by sources of greenhouse gases (GHG) within the project boundary of a CDM project activity and leakage, as applicable” (UNFCCC 2005b, 10). Thus, the monitoring plan needs to be approved by the CDM EB prior to registration. Just like baseline methodologies, there are approved monitoring methodologies and simplified monitoring methodologies for small-scale project activities.

For normal-size A/R CDM project activities, the collected and archived data should be able to determine the actual net GHG removals by sinks. This means that the monitoring plan should first identify the techniques and methods used for sampling and accounting individual carbon pools and GHG emissions by sources. For small-scale A/R CDM project activities, simplified monitoring requirements will be established by the CDM EB and made available to the public (UNFCCC 2004, appendix B, paragraph 4, 38).

3.7.8 Verification and certification

Once the actual GHG emission reductions are monitored and reported to the DOE by the project proponent, the DOE conducts the following verification activities in order to certify the authenticity of the report. DOE conducts the following activities under verification (UNFCCC 2001b, paragraph 62 [a–g], 39):

- Checks if the monitoring report satisfies the requirements of the registered PDD.
- Checks whether monitoring methodologies have been correctly applied.
- Has an on-site inspection conducted or requests any additional information from the project proponent, if necessary.
- Makes recommendations to the project proponents for any revisions related to the monitoring methodology for the future crediting period.
- Determines the actual GHG emission reductions by the CDM project activity.

The DOE prepares a verification report and a certification report, both of which will be made publicly available. The certification report states the verified amount of GHG emission reductions.

3.7.9 Issuance of CERs

Once the CDM EB receives a request to issue CERs, the CDM EB issues the certified amount of CERs within 15 days, unless a party involved in the project activity or at least three members of the CDM EB request a review. The net amount of CERs, after deducting the “share of proceeds” for adaptation [to climate change] and administrative expenses,¹¹ are placed under the appropriate account of the CDM registry under the supervision of the CDM EB. The proceeds for the adaptation are set as 2 percent of the amount of CERs issued (UNFCCC 2001b, paragraph 15, 23), while the percent of proceeds for administrative expenses has not been decided yet. Small-scale CDM projects may benefit from the lower level of the share of proceeds compared to the one for normal-sized CDM projects (UNFCCC 2002, paragraph 21, 22). A/R projects are exempted from providing the adaptation portion of the proceeds (UNFCCC 2004, (d), 26).

11. Article 12, paragraph 8, of the Kyoto Protocol (UNFCCC 1997) stipulates that “a share of the proceeds from certified project activities is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.”

4. POTENTIAL FOR CDM PROJECTS IN CAMBODIA

This chapter examines the potential for the development of CDM projects in Cambodia's energy and forestry sectors. The first part provides a summary of the national GHG inventory, while the second part is an assessment of the potential for CDM energy projects by resource type. With the exception of hydropower, limited project identification work has been undertaken to date. This will require CDM project developers to perform more specific project identification tasks. The second part examines deforestation trends and their implications for eligible afforestation/reforestation activities, including large-scale plantations and small-scale community forests.

4.1 Summary of greenhouse gas emissions in Cambodia

The 1994 national GHG inventory indicated that Cambodia had removed 59,708 gigagrams (Gg) of CO₂ equivalent (CO₂e) and emitted 64,850 CO₂e. Therefore, in 1994, Cambodia was a net carbon sink country with a net total carbon removal of 5,142 Gg of CO₂e.

The main source of CO₂ emissions was the land-use change and forest sector (LUCF: 97%), followed by the energy sector (3%). The contribution from the industry sector to total CO₂ emissions was insignificant. The capacity of LUCF to uptake CO₂ was 43 percent higher than the CO₂ emissions from the LUCF sector. Thus, in total this sector could offset all other GHGs emissions from other sectors. CO₂ emissions from the LUCF and the energy and industry sectors were approximately 45,214, 1,272, and 50 Gg, respectively, while CO₂ removal by the LUCF sector was 64,850 Gg.

Methane (CH₄) emissions were approximately 445 Gg, of which 76 percent was from agriculture, 17 percent from the LUCF sector, 5 percent from energy, and 2 percent from waste. Agricultural emissions of CH₄ mainly come from domestic livestock (54%) and rice cultivation (44%). Total nitrous oxide (N₂O) emissions of 12 Gg were mainly from agricultural soil (64%) and livestock (35%) in the agricultural sector. By converting CH₄ and N₂O emissions into global warming potential (GWP), expressed in tonnes of CO₂ equivalent,¹² CO₂ made up 74 percent of total GHG emissions, while CH₄ and N₂O made up 18 and 8 percent, respectively (figure 4.1).

12. Global warming potential (GWP) is expressed in gigagrams of CO₂e emissions per Gg of GHG emissions. Methane has a 21 Gg of CO₂e per Gg of CH₄ emitted. Nitrous oxide has a 310 Gg of CO₂e per Gg of N₂O emitted.

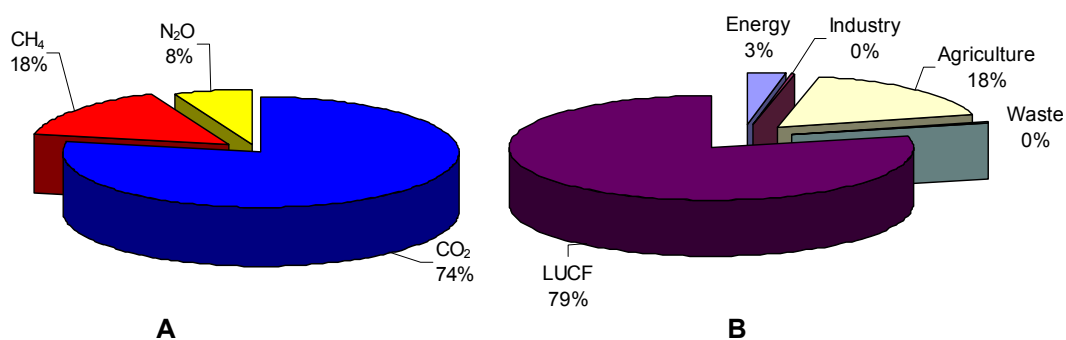


Figure 4.1. Share of the three main GHGs (A) and total CO₂e emissions (B) by sector

4.2 Potential for CDM projects in the energy sector

4.2.1 Overview

Aside from biomass, Cambodia has few conventional energy sources available within the country and even fewer that are currently exploitable. Wood accounts for more than 80 percent of total national energy consumption (MIME 1997). The country relies almost entirely on the importation of fossil fuels, mainly diesel and heavy oil, for electricity production. Offshore surveys of oil and natural gas have been conducted over the past ten years with various successes and failures. Test drills have revealed the potential existence of presumably large, but yet undetermined, offshore natural gas fields in Cambodia's portion of the Gulf of Thailand. Commercially viable offshore gas extraction will probably not be achievable for at least another five years (Williamson et al. 2004).

The 1998 national population census reported that less than 15 percent of the population had access to electricity (NIS 1999). Cambodia has the highest cost of electricity in Southeast Asia and the lowest level of consumption (ADB 2000a). Electricity costs range from \$0.09 per kilowatt-hour (kWh) to \$0.53/kWh for government services, and can be much higher for mini-grids serviced by rural electricity enterprises (REEs) (De Lopez 2003; Hundley 2003). The largest provider of electricity is Electricité du Cambodge (EDC), the state-owned electric utility company, although its coverage is limited to Phnom Penh (100,000 customers), and the three provincial capital cities of Sihanoukville, Siem Reap, and Kompong Cham (EDC 2001). Its operational capacity has been gradually upgraded over the past few years and, following a global pattern of liberalization of energy markets, its management and corporate culture have undergone a transformation towards the longer-term objective of becoming a competitively run electric utility.

Outside of the EDC's coverage area, small independent power generators provide electricity. Some 600 REEs operate small diesel-powered mini-grids to supply electricity to an estimated 60,000 customers (Meritec 2001). An additional 8,000 battery-charging shops provide services to rural communities. The REEs are usually small, locally owned businesses that consist of a diesel engine and generator with low-voltage distribution lines. These small power suppliers generally lack adherence to safety and technical standards, have high system losses, and use rudimentary equipment. Furthermore, electric service by local suppliers is limited to a

few highly profitable areas at the expense of more economically depressed regions (ADB and NRECA 2002).

Cambodia's power sector strategy for the period 1999 to 2016 was developed with the support of the World Bank (World Bank and HECEC 1998). In the first phase of the strategy, a 220-kilovolt transmission line is to be built from the Vietnamese border to Phnom Penh, while the second phase will consist of the construction of a transmission line from Thailand to Siem Reap (Angkor Wat) through Cambodia's northern agricultural provinces. With funding from the World Bank and the Asian Development Bank (ADB), the RGC is proceeding ahead with implementation of the first phase, which is expected to be completed by 2007 (World Bank and HECEC 1998).

Cambodia's potential for sustainable energy projects under the CDM has been assessed in existing literature (De Lopez 2003; Williamson et al. 2004). These reports conclude that the most promising sustainable energy projects in Cambodia are in the areas of hydropower, biomass, and energy efficiency. In particular, small-scale projects eligible for simplified methodologies offer the greatest potential for reducing GHG emissions while, at the same time, contributing to the achievement of the country's sustainable development objectives.

4.2.2 Potential for CDM projects in hydropower

The ADB has estimated that Cambodia has the potential for an installed capacity of 8,600 MW of hydropower generation, with the Ministry of Industry, Mines and Energy (MIME) estimating it at 10,000 MW (Hundley 2003). Taking the ADB's estimate, and assuming a capacity factor of 50 percent, the potential generation from hydropower is estimated at 37,668 GWh per year. This is about 70 times the current annual output of the EDC. Approximately 50 percent of this potential capacity is located on the Mekong River, 40 percent on its tributaries, and 10 percent in the southwestern coastal areas.

The first assessment of Cambodia's hydropower resources was performed by the Mekong River Secretariat in the early 1970s. Its study estimated that Cambodia's potential for hydropower power was at least 2,376 MW in the lower Mekong Basin and 988 MW outside the basin (Mekong Secretariat 1971, 1973). A total of 24 and 11 projects, respectively, were originally identified by the study for each watershed. More recently, two pre-investment studies were conducted on small- and micro-hydropower potential in Cambodia (Meritec 2001). The desk study of small-scale hydropower potential identified 68 projects, ranging in size from 0.65 to 4.2 MW. A study of community-scale hydropower projects identified 45 possible projects. Feasibility analyses of six of these, ranging in size from 32 to 246 kW, have been undertaken.

4.2.3 Potential for CDM projects in bioenergy

Cambodia has significant biomass energy resources, including many types of agricultural crop and livestock residues such as rice husk, cattle manure, municipal waste, and sewerage (De Lopez 2003). Assuming an average conversion efficiency of 34 percent, the potential for energy generation has been estimated at 18,852 GWh per year (Williamson et al. 2004). This estimate considers the bioenergy potential for the whole country from residues from all major agricultural crops plus livestock, sewerage, and municipal waste.

Many of Cambodia's bioenergy resources are already utilized for various applications such as cooking and cattle feed. These existing uses and the availability of alternative sources are

important points to consider when assessing any potential bioenergy project. For example, a project proposing to use the rice husk output of a rice mill in order to provide the mill's power requirements may inadvertently deprive the surrounding community of its main source of cooking fuel (Williamson et al. 2004; De Lopez 2003).

An assessment of the potential for using agricultural residues as bioenergy sources in Cambodia has also been conducted by the New Energy and Industrial Technology Development Organization (NEDO 2002). Rice, sugar cane, and maize are the only three crops that are grown nationally and of which residues can be used to produce energy. The annual national production in 2001 was 4.04 million tonnes of rice, 0.16 million tonnes of sugar cane, and 0.10 million tonnes of white maize (MAFF 2002). Rice and sugar cane production is broadly dispersed among different provinces. Three provinces exceeded an annual rice production of 400,000 tonnes, and three provinces produce more than 20,000 tonnes per year of sugar cane. In contrast, the production of maize is more concentrated, with most of the crop harvested in the province of Battambang. The centrally located province of Kompong Cham is the region with the highest potential for use of biomass energy resources. Its annual production in 2000 for rice, sugar cane, and maize was, respectively, 465,733 tonnes, 25,310 tonnes, and 15,649 tonnes. Proximity to the capital and the existence of adequate roads and waterways make the area promising for the construction of power-generation facilities using biomass.

Several provinces have been identified as having potential for using rice husk for power production. Existing rice mills operated by independent rural entrepreneurs use rudimentary technology and have limited processing capacity, e.g., two to three tonnes of rice per hour. This implies that rice husk will generally need to be collected from different mills to a central location. A study funded by the European Commission-funded COGEN 3 identified clusters of rice mills in the provinces of Battambang and Banteay Meanchey, where rice husk is available in sufficient quantities for cogeneration plants of 1 MW capacity and less (De Lopez et al. 2003).

The COGEN 3 program conducted a pre-investment study for a 1.5-MW rice husk-fired cogeneration project at the Angkor Kasekam Roongroeng Rice Mill on the outskirts of Phnom Penh. The mill's production of rice husk is expected to generate enough electricity to meet the mill's load, thus replacing diesel generators. Excess steam from the boiler will be passed through a heat exchanger and used to dry the rice before processing. The study suggests a total project cost of 3.34 million euros and an internal rate of return (IRR) of 26.9 percent. The project proponents are currently seeking equity financing before proceeding (COGEN 3 2004).

4.2.4 Potential for CDM projects in solar energy

Cambodia receives a relatively high level of solar radiation throughout the year. The US National Aeronautics and Space Administration's (NASA) global solar radiation model estimates the daily average to be about 5.10 kWh per square metre (m), with a monthly average deviation of 11 percent (Meritec 2001). The theoretical maximum potential for harnessing solar energy can be calculated by first estimating the total maximum surface area of the country that is available for mounting collectors (either photovoltaic [PV] or solar thermal) and then calculating the potential installed peak capacity and generation, assuming a conversion efficiency for particular technologies. This approach suggests that 0.02 percent of Cambodia's land area is suitable for installing PV modules. With current technology this would provide a peak capacity of 4,189 MW and generate approximately 21 GWh of electricity per day. To put this in perspective,

over a year this would be roughly 13 times the total annual power currently generated by the EDC (Williamson et al. 2004). The availability of suitable land area is not the most significant barrier to the wider use of solar energy in Cambodia; the feasibility of projects in the short term is driven by relative energy costs, affordability, and awareness. The main barriers to the adoption of PV technology may be the high initial investment cost and the low awareness in Cambodia of the technology (Burgeap and Kosan Engineering 2001).

4.2.5 Potential for CDM projects in wind energy

Appropriate monitoring data to thoroughly assess Cambodia's wind energy resources do not exist. The World Bank's *Wind Energy Resource Atlas of Southeast Asia* (Truewind Solutions LLC 2001) provides predictions of the country's wind energy potential with a spatial resolution of one kilometre (km). The statistics are calculated at both 30 m and 65 m above ground level, and include average annual wind speeds and frequency distribution. The atlas was generated using a proprietary finite element model based on a number of meteorological and topographical data inputs but no actual wind data from ground-based monitoring systems. Therefore, the data should be used with caution, and appropriate on-site monitoring is needed prior to establishing the feasibility of particular projects (Truewind Solutions LLC 2001). According to the atlas, Cambodia's elevated plateaus and mountain ranges are areas with high wind energy potential. It estimated that a total area of 345 square kilometres (km²) has predicted annual average wind speeds above seven metres per second (m/s), which corresponds to approximately 1,380 MW of potential wind turbine capacity with an annual generation of 3,627 GWh (Williamson et al. 2004). This figure only considers the potential for large commercial wind turbines, while there is good potential in Cambodia for village-scale wind energy projects. The atlas estimates that 6 percent of the rural population lives in areas with an annual average wind speed of five to seven m/s at 30 m above ground level, which should be sufficient for village-scale wind energy projects. If 50 percent of rural households in these windy areas were to install a 400-W wind generator, then the total installed capacity would be approximately 22 MW, which would generate about 39 GWh per year. To date, the only wind turbines installed in Cambodia are small-scale turbines, generally around a 400-W capacity, which have either been donated as part of a multilateral demonstration project or purchased by private households to charge batteries for rural houses with no grid access.

The government of the Belgian state of Flanders completed building a wind-monitoring station near Sihanoukville in January 2003, which consists of a 30 m-high mast with an anemometer and a wind vane mounted at the top, as well as approximately 20 m above the ground. Data monitoring commenced in early February 2003 and is currently the only high-quality wind energy data available in the country (Williamson et al. 2004).

4.2.6 Potential for CDM projects in energy efficiency

Cambodia's total potential savings from energy-efficiency measures are estimated at about 467 GWh per year, or a 29 percent energy saving (Williamson et al. 2004). Table 9 summarizes the most relevant and feasible energy efficiency project types for the power, industrial, commercial, and residential sectors. The average potential savings from each project were estimated based on relevant studies and industry benchmarks.

- *Power sector*: electricity generators and suppliers including government utilities, IPPs, REEs, and also companies that own and operate their own generators. (These companies may also belong to the commercial or industrial sectors, depending on their prime business.)
 - *Industrial sector*: all companies involved in manufacturing activities such as brick kilns, garment factories, tobacco processing, etc.
 - *Commercial sector*: hotels, office buildings, restaurants, shopping centres, and hospitals
1. *Residential sector*: all private households

Table 4.1. Potential energy- efficiency projects and potential savings identified

Project type	Project description	Potential energy saving
<i>Power sector</i>		
Generation	<ul style="list-style-type: none"> • Upgrade equipment to more efficient, modern designs; optimise engine sizing and control strategies; install monitoring sensors; and improve maintenance programs and energy management. 	15% 200 GWh/yr
Distribution	<ul style="list-style-type: none"> • Optimise network design to balance loads; upgrade conductor sizes and quality to reduce losses; install power factor correction. 	10% 12 GWh/year
Cogeneration	<ul style="list-style-type: none"> • Harness waste heat for on-site heat or cooling load (or sell to neighbouring factory, building, etc.) 	30% 60 GWh/year
<i>Industrial sector</i>		
Steam systems	<ul style="list-style-type: none"> • Upgrade boiler design, insulate ducting, clean and maintain steam traps, pre-heat feed water with waste process heat, fix leaks, install monitoring sensors, and improve maintenance programmes and energy management. 	15% 4 GWh/year
Lighting	<ul style="list-style-type: none"> • Optimise design to minimize energy use by using skylights, windows, task lighting; upgrade technology with high efficiency fittings, reflectors, lamps, ballasts, and voltage controllers; improve automatic and manual control using occupancy sensors, brightness sensors, dimmers, and timers. 	15% 2 GWh/year
Brick kilns	<ul style="list-style-type: none"> • Build high-efficiency design (e.g., vertical shaft kiln) to minimize heat loss; use waste heat and make continuous process; use organic additives in clay such as rice husk; install monitoring sensors to optimise process flow and energy use. 	50% 138 GWh/year
Cogeneration	<ul style="list-style-type: none"> • Harness waste heat from generator and use for on-site heat or cooling load (or sell to neighbouring factory, building, etc.) 	30% 13 GWh/year
<i>Commercial sector</i>		

Project type	Project description	Potential energy saving
Lighting	<ul style="list-style-type: none"> Optimise design to minimize energy use by using skylights, windows, task lighting, and zoning; upgrade technology with high-efficiency fittings, reflectors, lamps, ballasts, and voltage controllers; improve automatic and manual control using occupancy sensors, brightness sensors, dimmers, and timers. 	15% 7 GWh/year

Table 4.1—Continued

<i>Commercial sector—Continued</i>		
Air-conditioning	<ul style="list-style-type: none"> Optimise building design to maximize insulation, minimize direct solar gain (e.g., plant trees and shading); use zoning to avoid cooling unused areas, and use ceiling fans where possible; upgrade technology using improved refrigerants and lubricants, heat pumps, exhaust air heat capture; and improve system control by using comfort and occupancy sensors, timers, and possibly night-purge function. 	40% 70 GWh/year
Water heating	<ul style="list-style-type: none"> Optimise system design using centralized or small individual units; reduce distance from source to use; minimize water temperature for application, and harness waste heat where available (from nearby industry or air-conditioning); upgrade technology to solar where possible; avoid electric storage systems; insulate ducting; reduce water use by fixing leaks and using efficient nozzles, taps, and showers. 	95% 26 GWh/year
Cogeneration	<ul style="list-style-type: none"> Harness waste heat from generator and use for on-site heating or cooling load, such as water heating or air-conditioning and refrigeration (or sell to neighbouring factory, building, etc.) 	30% 12 GWh/year
<i>Residential sector</i>		
Improved cook stoves	<ul style="list-style-type: none"> Disseminate improved cook stove design with improved insulation and airflow to provide greater combustion and thermal efficiency. 	30% 6,530 GWh/year
Energy-saving fluorescent lamps	<ul style="list-style-type: none"> Replace incandescent lamps with energy-saving lamps, which use less power to provide the same amount of light and also have a longer life (e.g., replace 25-W incandescent with 7-W fluorescent). 	72% 61 GWh/year

Source: Williamson et al. 2004.

4.3 Forestry sector

4.3.1 Deforestation trends and CDM eligibility

There has not been any formal evaluation to date, as defined by the CDM, of Cambodia's potential for reforestation and afforestation projects. The extent of land eligible for sink activities—the so-called “Kyoto land”—is yet to be determined. Under the CDM, reforestation may take place on land that has not been forested since December 31, 1989, whereas afforestation takes place on land which has not been forested for 50 years. Small-scale CDM forestry projects, that is, projects sequestering less than eight kilotonnes of carbon dioxide

equivalent per year and implemented by low-income communities will benefit from simplified methodologies.

The most reliable assessments of Cambodia's forests were produced with satellite imagery in 1993 and 1997. In 1993 the forest cover was estimated at 11.3 million hectares (ha), or 62 percent of total land area. Between 1973 and 1993, the country lost 1.4 million ha of forests (World Bank 1996). In 1997 the forest cover was estimated at 58 percent, or 10.5 million ha, which implies that Cambodia had lost a further 0.8 million ha (World Bank 1999). These inventories, however, do not reveal the quality of below-canopy forest resources. Deforestation increased substantially from the beginning of the 1990s with increased political stability. In 1994 the RGC established a system of forest concessions granting logging rights to private companies, but actual levels of harvesting have been up to five times higher than the suggested annual allowable cut of 500,000 cubic metres (MOE Cambodia 1998; IDA 1998). As a consequence, most of Cambodia's commercially attractive forest resources may have already been exploited (CDRI 2002; IFSR 2004).

As much of Cambodia's forests have been exploited since the beginning of the 1990s, the proportion of degraded forest areas eligible for CDM activities may be limited. The 1996 National Environment Action Plan provides rough estimates of forest cover losses in the provinces of Cambodia at the end of the 1980s (table 4.2). As shown in table 4.3, it appears that the central provinces (Kandal, Takeo, Kompong Chhnang, Kompong Speu, Prey Veng, Svay Rieng, and Kompong Cham) had lost from half to the totality of their forests by the late 1980s (MOE Cambodia 1998). Thus, large areas in these provinces would comply with the December 31, 1989, cut-off date for reforestation activities. However, these provinces are also highly populated, which means that non-forested land is likely to already be cultivated or occupied by settlements. This would mean changing land-use patterns for large-scale concessions. Similarly, provinces which had experienced little forest cover loss by the late 1980s are likely to provide little eligible land, as deforestation only occurred after 1990. These include Preah Vihear, Ratanakiri, Stung Treng, Battambang, Kompong Thom, Pursat, Siem Reap, Koh Kong, and Mondolkiri.

Table 4.2. Deforestation trends in Cambodia, by province

Province	Percentage of forest cover, late 1980s	Percentage of loss
Kandal	0	100
Takeo	0	100
Kompong Chhnang	1–5	92
Kompong Speu	15	75
Prey Veng	1–5	66
Svay Rieng	1–5	66
Kompong Cham	30	50
Kampot	40	33
Kratie	85	6

Preah Vihear	85	6
Ratanakiri	80	6
Stung Treng	85	6
Battambang	55	0
Banteay Meanchey	N/A	N/A
Kompong Thom	60	0
Pursat	60	0
Siem Reap	60	0
Koh Kong	90	0
Mondulhiri	90	0

Source: NEAP 1998.

An examination of forest cover rates, obtained using Landsat spectral analysis by the United Nations Development Programme (UNDP) and the UN's Food and Agriculture Organization (FAO 1994), similarly shows that the outlying provinces of Preah Vihear, Ratanakiri, Stung Treng, Koh Kong, Mondulhiri, and Kratie had forest cover rates in excess of 80 percent in 1985–87 and in 1992/93. These four large provinces each have more than 12,000 km² in land area. The central provinces of Kandal, Takeo, Prey Veng, and Svay Rieng have had little forest cover since 1985–87, with rates ranging from 6 to 25 percent. However, they concentrate populations and are of relatively smaller size, with less than 5,000 km² in land area each. Battambang and Kompong Thom are the only large provinces with forest cover ranging from 50 to 60 percent in 1985–87.

Table 4.3. Forest cover by province in 1985–87 and 1992/93

Province	Forest area in 1985–87 (km ²)	Percentage of forest cover, 1985–87	Forest area in 1992/93 (km ²)	Percentage of forest cover, 1992/93	Total land area (km ²)
Kandal	923	25%	748	20%	3,663
Takeo	541	16%	437	13%	3,430
Kompong Chhnang	2,753	52%	2,397	45%	5,278
Kompong Speu	4,370	65%	4,447	66%	6,756
Prey Veng	407	8%	155	3%	4,847
Svay Rieng	204	7%	171	6%	2,850
Kompong Cham	3,910	42%	3,510	38%	9,358
Kampot	2,971	59%	2,850	57%	5,020
Kratie	10,773	89%	10,059	83%	12,061
Preah Vihear	12,627	93%	12,891	95%	13,586

Ratanakiri	11,782	94%	11,595	92%	12,561
Stung Treng	10,546	94%	10,636	95%	11,175
Battambang	6,824	55%	6,330	51%	12,501
Banteay Meanchey	1,740	23%	2,321	31%	7,480
Kompong Thom	8,079	62%	7,771	59%	13,076
Pursat	8,199	72%	8,133	71%	11,457
Siem Reap	10,479	67%	9,817	62%	15,726
Koh Kong	11,686	90%	11,956	92%	12,963
Mondulkiri	12,866	94%	13,098	96%	13,702

Source: UNDP and FAO 1994.

Available data can only provide a broad estimation of the eligibility of land for reforestation projects in Cambodia. Given historical deforestation trends in the country—that is, the acceleration of logging activities from the early 1990s—large swathes of presently degraded forests would not be eligible for CDM activities. The evidence suggests that much of the country was forested in 1985–87 and in 1992/93. Provinces that have historically had little forest cover correspond to areas of highly populated settlements and agriculture. Reforestation activities in these areas would entail converting agricultural land back to forests. Although technically feasible and legally eligible under the CDM, the economics of such projects need to be further evaluated. In addition, the potential for land-use conflicts is likely to be higher for large projects. Thus, large-scale CDM sink plantations are more likely to be exceptions rather than widespread in Cambodia. However, an analysis of satellite and aerial pictures from 1990 remains necessary to allow for a more accurate assessment.

4.3.2 Potential for small-scale afforestation/reforestation CDM projects

Although it may be difficult to find large tracts of non-forested land eligible for CDM projects not currently under agricultural use, Cambodia presents opportunities for the implementation of small-scale, community-oriented reforestation and afforestation activities (figure 4.2).

A survey of community forest management has identified 237 community forests in Cambodia (CDRI 2002). These involve more than 410,000 people in 416 villages, covering some 72,000 ha of land. The agencies working to establish community forests include a wide range of international organizations, local non-governmental organizations (NGOs), and government. About half of the projects were started prior to 2000, some as early as 1991, but most in the late 1990s. This shows that there is a body of accumulated experience in community forestry in Cambodia and that there is still much donor interest, as half of the projects were established after 2000.

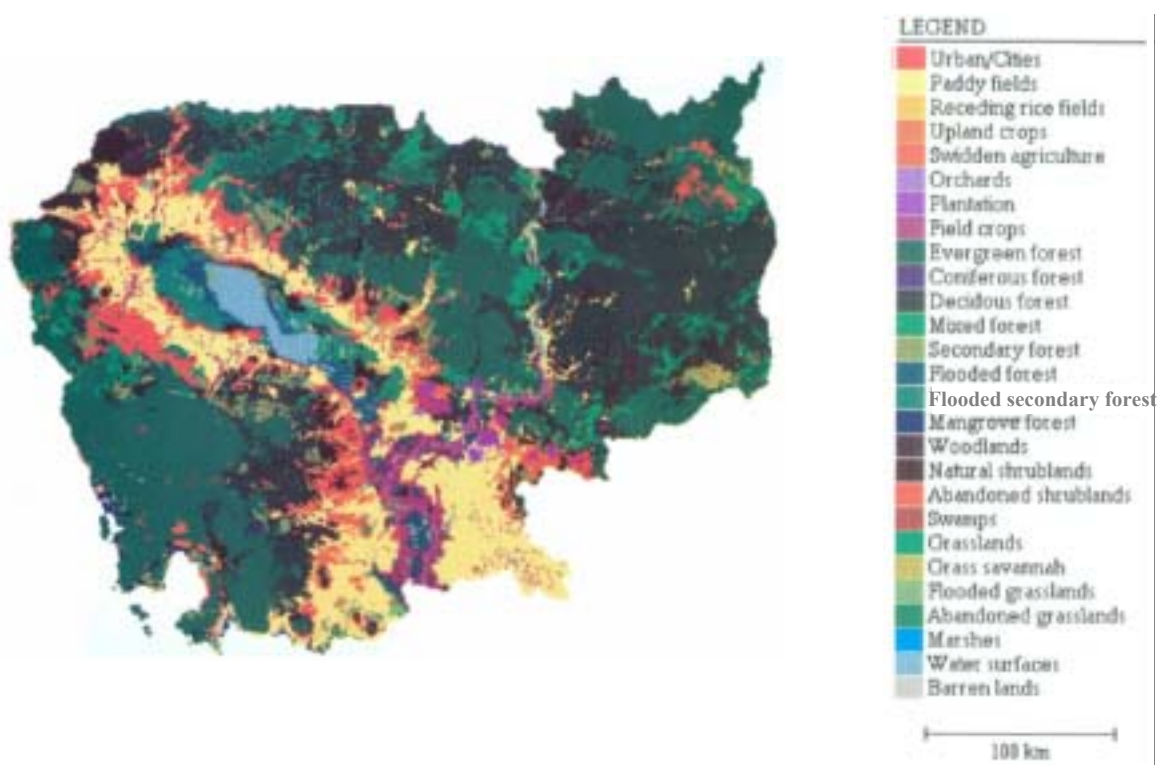


Figure 4.2. Land cover map of Cambodia

Source: UNDP and FAO 1994.

Community forestry has attracted more donor attention in recent years because of a combination of the following two factors: (1) difficulties in reforming the forest concession system towards sustainability and social responsibility, and (2) rapid degradation of forest resources upon which large segments of the rural population depend. The near destruction of Cambodia's forest resources can largely be blamed on donors' and government's inability to reform the forest concession system and to uphold legal allowable annual cuts. In its vision for Cambodia's forestry sector development, the World Bank considers community forests as "a means for achieving sustainable management for the large bulk of forest resources that are not suited to commercial production and which will be beyond the direct management capacity of Government" (World Bank 1999). Thus, community forests may prove to be a sustainable alternative to forest concessions. In addition, forests have traditionally provided rural people with a host of timber and non-timber forest products, including fuelwood, resin, fruits, vegetables, medicines, fodder, and wild animals. According to the 1997 national census, fuelwood is the main source of cooking fuel for 90 percent of the population (NIS 1999). Forests act as an essential safety net and complement agricultural activities. Well-stocked community forests create employment, provide opportunities for income generation, and thus may play a role in poverty reduction.

According to CDM procedures for reforestation and afforestation activities, projects are eligible for simplified methodologies if they (1) result in net anthropogenic GHG removals of less than eight kilotonnes of CO₂ and (2) are developed or implemented by low-income communities. The definition of a low-income community is to be provided by the host country, but Cambodia

has not yet reported to the CDM Executive Board its official definition of low-income communities for simplified methodologies eligibility. However, Cambodia's official poverty line is defined by the inability to buy a food basket to meet the daily requirements of 2,100 calories and 58 grams of protein, or an equivalent income of less than \$14 per month per capita (MOP 1999). Cambodia's poor are not able to spend more than 45 cents a day on basic food, clothing, and shelter needs. In 1999 about 36 percent of the population, or more than four million people, were unable to meet basic food requirements and thus were categorized as poor (MOP 1999). The incidence of poverty is higher in rural areas than in urban areas. Phnom Penh has the lowest percentage of poor people in the country, standing at about 11.1 percent of its population. This compares with an average of 29.7 percent in other urban areas and 40.1 percent in rural areas. More broadly, a "participatory poverty assessment" undertaken by the ADB used lack of food security as the major indicator of poverty (ADB 2001). Villagers participating in the exercise defined poor households as those where hunger is persistent or where hunger could be escaped from only temporarily. Community-based CDM sink activities have the potential for alleviating poverty in rural areas by diversifying income and providing local people with forest products. As articulated in its 2003–2005 National Poverty Reduction Strategy, the government aims "to reduce poverty and inequality, and improve the quality of life of the vast majority of Cambodia's growing population" (CSD 2002). The government's official target is to reduce poverty to 31 percent by 2005. Thus, small-scale CDM sink activities implemented by low-income communities would also contribute to national efforts to reduce poverty.

Potential sites for community forestry plots are likely to be small and scattered, but economies of scale may be achieved by bundling village plots under a single CDM sink project. While the central provinces with high population densities may present few opportunities for large forest plantations, they may be more suitable for small-scale CDM sink activities implemented by low-income communities. These provinces have few forest resources left and were largely deforested before 1990. Community forests, household forest plots, and agroforestry present potential for carbon sequestration and sustainable development benefits for local people.

5. CDM-RELATED GOVERNMENT AUTHORITIES

5.1 Current structure of Cambodia's designated national authority

At the time of writing this CDM country guide, the Ministry of Environment of Cambodia (MOE) is acting as the designated national authority. Cambodia ratified the UNFCCC on December 18, 1995, and acceded to the Kyoto Protocol on July 4, 2002. The MOE is the national focal point of both. Cambodia's first national communication under the UNFCCC was submitted in October 2002.

The Royal Government of Cambodia appointed the MOE as the designated national authority for the CDM on July 15, 2003. The CDM Executive Board was notified on August 26, 2003, and on June 30, 2004, the MOE provided the UNFCCC Secretariat the name and designation of the person authorized to provide written approval of proposed CDM projects: H. E. Khieu Muth, Secretary of State for the Environment.

On June 23, 2003, the Cambodian Climate Change Office (CCCO) was established within the Department of Planning and Legal Affairs of the MOE. The CCCO was given the broad task of undertaking all technical activities related to the implementation of the UNFCCC and other climate change-related tasks assigned by the MOE (MOE Cambodia 2003). In particular, the CCCO acts as the country's secretariat of the UNFCCC, the Kyoto Protocol, and as the CDM focal point for Cambodia. Of relevance to the CDM are the following tasks of the CCCO: provide information and advice to government on preparation of negotiation positions; establish national climate change policies, plans, and legal instruments; identify and assess new technologies appropriate for Cambodia to adapt to climate change or to mitigate GHG emissions; organize training courses, workshops, seminars, and meetings; and enhance cooperation with relevant governmental agencies, national and international organizations, NGOs, and local communities to implement national climate change policies.

The structure of the current governmental climate change framework is presented in figure 5.1. The diagram shows the following different attributions of the CCCO: GHG inventory, GHG mitigation, vulnerability and adaptation, and UNFCCC implementation. The CCCO works on its assigned tasks in cooperation with other ministries through the Ad Hoc Inter-Ministerial Working Group on Energy and the Ad Hoc Inter-Ministerial Working Group on Forestry, both composed of technical-level staff from ministries relevant, respectively, to energy and forestry issues. The Energy Working Group includes technical staff from the Ministry of Industry Mines and Energy (MIME), while the Forestry Working Group is comprised of representatives from the Ministry of Agriculture, Forestry and Fisheries (MAFF). These working groups are responsible, respectively, for assisting the CCCO in assessing proposed CDM projects in the energy and forestry sectors.

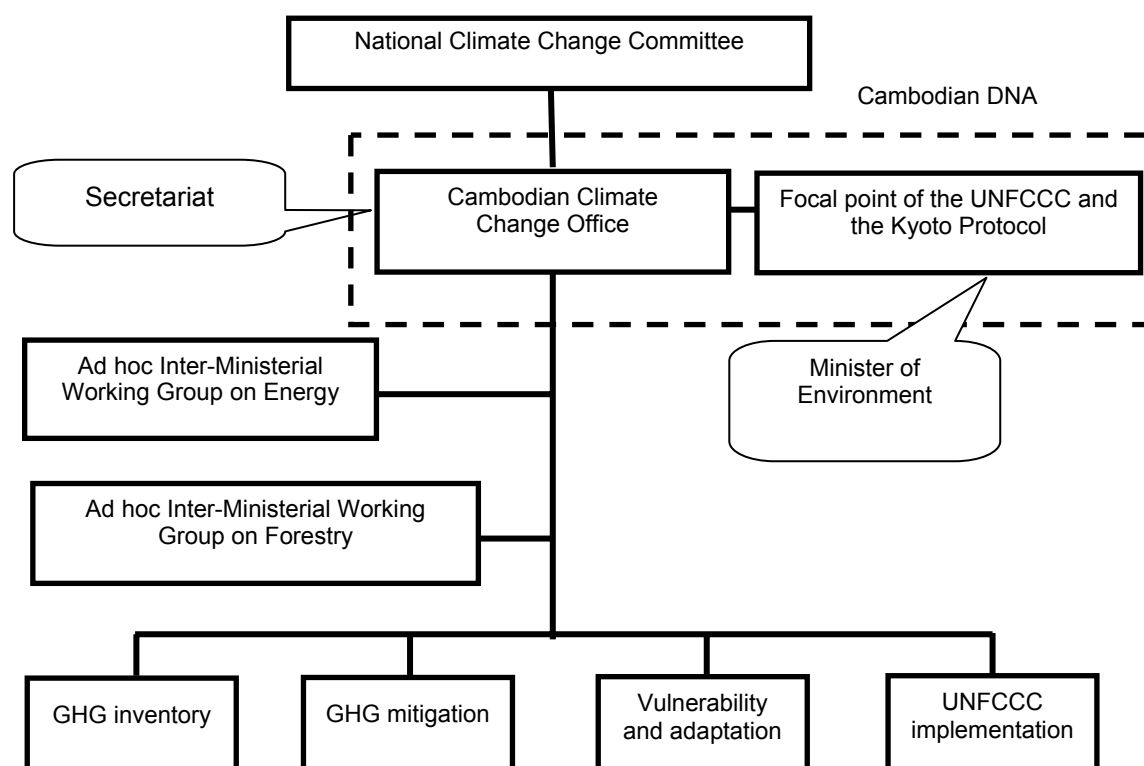


Figure 5.1. Cambodia's current climate change framework

5.2 Future developments of Cambodia's designated national authority

As in the case of the existing DNA, the proposed structure of Cambodia's future DNA gives a central role to the Ministry of Environment. The approval process for proposed CDM projects is similar, with participation still required of the relevant ministries for energy and forestry projects. However, the proposed new structure has been developed to give key players more formalized roles in the assessment process.

The proposed DNA is comprised of three players: (1) the National CDM Board, (2) the DNA secretariat, and (3) the technical inter-ministerial working groups.

National CDM Board. The board issues an official approval letter confirming voluntary participation and project conformity with national sustainable development objectives. It is composed of representatives from the following: Ministry of Environment (MOE), Ministry of Agriculture Forestry and Fisheries (MAFF), Ministry of Industry Mines and Energy (MIME), Ministry of Planning (MOP), Council for the Development of Cambodia (CDC), and the Ministry of Public Works and Transport (MPWT). The board members are at least of the undersecretary-of-state level. It is chaired by the Minister of Environment or, in his absence, a vice chair (representative of MAFF or MIME). Decisions of the board concerning proposed CDM projects require the full consensus of all board members and their signatures for the board's minutes. The approval letter is then signed by the minister or a representative.

DNA secretariat. The Cambodian Climate Change Office (CCCO) acts as the DNA secretariat and is the national contact point for CDM activities in Cambodia. The CCCO is part of the Department of Planning and Legal Affairs of the Ministry of Environment. The tasks of the DNA secretariat are as follows: the secretariat receives and screens project design documents (PDD) for completeness, coordinates technical working group activities, and communicates directly with the National CDM Board. In addition, it is responsible for collating relevant information for the board to make an informed decision on proposed CDM projects. Thus, the secretariat coordinates assessment of the PDDs by the technical working groups and records the positions of the main stakeholder groups with regard to proposed CDM projects. It is the duty of the DNA secretariat to ensure public awareness of proposed CDM projects and to conduct broad-based consultation of stakeholders, including NGOs, the private sector, academia, experts, community organizations, members of the public, etc. To efficiently collect and analyse information for the National CDM Board, the DNA secretariat is given the following broad-ranging powers: it has the right to reject incomplete PDDs, it may hire or invite national and international technical experts for PDD assessment, and it has the authority to request additional information from project proponents, as well as the authority to request full access to the proposed project development site. It should be noted that the secretariat has no project approval authority; it cannot accept or reject PDDs based on national sustainable development criteria/objectives. As discussed above, this authority is vested with the National CDM Board.

Technical inter-ministerial working groups. There are two main technical working groups: the Energy Technical Working Group and the Forestry Technical Working Group. Other technical working groups are formed as necessary. The composition of the Energy Technical Working Group is as follows: three representatives of MIME (renewable energy, planning, hydroelectricity), three representatives of the MOE (CCCO, environment impact assessment, one other relevant department), one representative from the Royal University of Phnom Penh (RUPP), one from the Royal University of Agriculture (RUA), one from the Institut de Technologie du Cambodge (ITC), and one from the MPWT. The composition of the Forestry Technical Working Group is as follows: three representatives from MAFF (forest administration, agronomy, planning), three from the MOE (CCCO, environment impact assessment, one other relevant department), one from RUPP, one from RUA, one from the ITC, and one from the MPWT. Thus the composition of the technical inter-ministerial working groups ensures that a broad range of government agencies, including academic institutions, is represented. The technical working groups review PDDs against the sustainable development criteria, but they do not have any decision-making authority. The technical working groups prepare a project technical assessment report, including technical and policy recommendations for the National CDM Board. The project technical assessment report is then submitted to the DNA secretariat.

The composition, roles, responsibilities, and decision-making powers of the National CDM Board, the DNA secretariat, and the inter-ministerial technical working groups are summarized in table 5.1.

Table 5.1. Summary of Cambodian DNA players

Players	Composition	Roles and responsibilities	Decision-making authority
National CDM Board	<ul style="list-style-type: none"> - One representative from each of the following ministries: MOE, MAFF, MIME, MOP, CDC, MPWT. - Representatives are at least the undersecretary-of-state level. - The board is chaired by the Minister of Environment or, in his absence, a vice chair. - The representatives of MAFF and MIME act as vice chairs. 	<ul style="list-style-type: none"> - Assess proposed CDM projects for Cambodia. - Issue the official approval letter confirming voluntary participation and project conformity with national sustainable development objectives. - Facilitate project evaluation by the DNA secretariat with public institutions. 	<ul style="list-style-type: none"> - To approve/reject proposed CDM projects for Cambodia. Decision-making requires the full consensus of all board members and their signatures for the board's minutes. The official approval or rejection letter is signed only by the chair of the board. - The board has the authority to withdraw its approval in cases where implementation of the CDM project fails to comply with the commitments made in the PDD in relation to sustainable development. - The board appoints the members of the technical inter-ministerial working groups.
DNA secretariat	<ul style="list-style-type: none"> - The Cambodian Climate Change Office (CCCO) acts as the DNA secretariat. 	<ul style="list-style-type: none"> - The DNA secretariat is the national contact point for CDM activities in Cambodia. - It receives and screens PDDs for completeness. - It coordinates working group activities. - It communicates directly with the National CDM 	<ul style="list-style-type: none"> - The DNA secretariat has the right to reject incomplete PDDs. - It has no project approval authority; it cannot accept or reject PDDs based on national sustainable development criteria/objectives. - It may hire or invite

Players	Composition	Roles and responsibilities	Decision-making authority
		<p>Board and is responsible for collating relevant information for the board to make a decision on proposed CDM projects. This information includes assessment of PDDs by the technical working groups and the positions of the main stakeholder groups.</p> <p>- It coordinates broad-based consultation of stakeholders (NGOs, private sector, academia, experts, community organizations, members of the public, etc.)</p>	<p>national and international technical experts for PDD assessment as needed.</p> <p>- It has the authority to request additional information from project proponents as needed.</p> <p>- It has the authority to request full access to the proposed project development site.</p> <p>- It has the authority to conduct public consultation with stakeholders.</p> <p>- It has the authority to release or publicize project information submitted.</p>
<p>Technical inter-ministerial working groups</p>	<p>- There are two main technical working groups: the Energy Technical Working Group and the Forestry Technical Working Group. Other technical working groups are formed as necessary.</p> <p>- The composition of the Energy Technical Working Group is as follows: representatives of MIME (renewable energy and energy efficiency, planning, hydroelectricity, etc.),</p>	<p>- The technical working groups review PDDs against sustainable development criteria.</p> <p>- They prepare a project technical assessment report, including technical and policy recommendations for the National CDM Board. The report is then submitted to the DNA secretariat.</p>	<p>- The technical working groups have the authority to monitor and assess CDM project implementation against commitments made in the PDD related to sustainable development.</p>

Players	Composition	Roles and responsibilities	Decision-making authority
	<p>representatives of the MOE (CCCO, environment impact assessment, other relevant departments), a representative from RUPP, one from RUA, one from the ITC, and one from the MPWT.</p> <p>- The composition of the Forestry Technical Working Group is as follows: representatives of MAFF (forest administration, agronomy, planning, etc.), representatives of the MOE (CCCO, Department of Environment Impact Assessment, Department of Nature Conservation and Protection, etc.), a representative from RUPP, and one from RUA.</p>		

Source: CCCO 2004.

6. CDM PROJECT APPROVAL PROCEDURES AND REQUIREMENTS

6.1 Sustainable development criteria and assessment matrix

Cambodia's DNA assesses proposed CDM projects against the three pillars of the Royal Government of Cambodia's development strategy, namely, economic development, environmental protection, and poverty reduction. Approved CDM projects must contribute to Cambodia's sustainable development; that is, they must meet the needs of the present generation without compromising the needs of future generations (CCCO 2004).

Cambodia has developed a *sustainable development matrix* to be used as a tool for assessing CDM projects. This matrix is similar in nature to other matrix tools used by international organizations to assess CDM projects against sustainability criteria (see, for example, Worldwide Fund for Nature and SouthSouthNorth). This matrix—essentially based on Cambodia's existing laws, regulations, policies, statements, and commitments to international conventions—focuses on four aspects of sustainable development: economic, social, environmental, and technology transfer. There is a total of 25 indicators, divided as follows: 11 environmental protection and improvement indicators, 8 social indicators (enhancement of income and quality of life), 2 technology transfer indicators, and 4 indicators of economic benefits.¹³

Proposed CDM projects are assessed by rating each indicator on a scale ranging from positive to negative rating. A positive rating indicates best practice of a particular criterion, while a negative rating would mean that the project has serious impact against a particular criterion. A neutral rating would indicate that the project has no significant impact (positive or negative) against a particular criterion, or is business as usual.

The project must achieve a positive or neutral rating for each criterion of the 4 mentioned categories - Economic, Social, Environmental and Technology Transfer. A negative rating in one of the criteria indicates that the project does not fully meet the sustainable development goals of Cambodia (as outlined in the related laws, regulations, policies, statements and conventions); and the project should be reworked and resubmitted to the DNA. The absence of negative impacts for each criterion is considered to be the minimum threshold with which project proponents must comply.

The guidelines accompanying the sustainable development matrix specify that project proponents must submit a PDD outlining how sustainable development objectives are met for each of the 25 indicators. Furthermore, the assessment takes into consideration (1) all impacts of the project, both within and outside the project boundary; and (2) all stages of the project cycle, from project construction to project decommissioning.

13. The sustainable development matrix is provided in appendix IV.

Cambodia's DNA explicitly specifies that the *monitoring and verification plan* not be limited to GHG emissions reduction; it must also cover all commitments of the project outlined in the PDD pertaining to the sustainable development matrix. Thus, the DNA stipulates that failure of the project to comply with these commitments will result in the designated national authority withdrawing its approval of the project and formally notifying the CDM Executive Board.

6.2 Current approval procedures

Cambodia's current approval procedures for CDM projects have been streamlined. Interested project proponents must submit a PDD to the designated national authority, that is the Cambodian Climate Change Office (CCCO) within the Ministry of Environment. As outlined in the guidelines accompanying the sustainable development matrix, there are currently six steps in the approval process (CCCO 2004):

- Project developers submit a PDD to the DNA (the CCCO).
- The DNA receives and previews the PDD for completeness. If there is insufficient information to undertake the assessment, the DNA asks developers to re-submit the PDD with the required information.
- On receipt of a complete PDD, the DNA advertises the application of the proposed CDM project in a relevant form, such as on the World Wide Web or in the local press. This is expected to encourage stakeholder feedback.
- The DNA convenes an inter-ministerial and stakeholder team, and then undertakes the assessment of the project against the sustainable development matrix. The assessment team undertakes site visits if necessary.
- If the project meets Cambodia's sustainable development objectives, the DNA will issue a letter of approval for the project. If the project does not meet the objectives, the DNA will share the result of the assessment with the project developers and assist in the process of revising the PDD.
- The approved project is added to the database of CDM projects on the CDM Web site.

6.3 Proposed approval procedures

The future Cambodian DNA will make use of the same sustainable development matrix as the current DNA does to assess CDM projects. The proposed approval procedures provide detailed information as to the timeframe and nature of assessment activities undertaken by the key DNA players, that is, the National CDM Board, the DNA secretariat, and the inter-ministerial technical working groups. The entire approval process is expected to take 55 working days.

The flow diagram of the approval process (see figures 6.1 and 6.2) is divided into three phases. Phase I (ten working days) consists of the initial screening of the PDD for completeness by the DNA secretariat. In addition, the PDD must be submitted with (1) relevant official investment approvals (from the Council of Ministers, CDC, provincial authorities, etc.) if required, and (2) an environmental impact assessment report, if required. PDDs deemed complete are then subject to public notification. Phase II (30 working days) consists of a technical assessment of the PDD against the sustainable development matrix, as well as collection of all stakeholder comments submitted to the DNA secretariat. The relevant inter-ministerial technical working group in energy, forestry, or other areas, is responsible for preparing the *technical assessment report*, which analyses the proposed CDM project against

national sustainable development objectives using the sustainable development matrix. Stakeholders—including NGOs, local communities, the public-at-large, and academics—have twenty working days to submit their comments on the proposed project to the DNA secretariat. The secretariat then prepares the assessment report, which consists of the technical assessment report by the working groups, all stakeholder comments, and any other relevant information. At the end of phase II, the assessment report is submitted to the National CDM Board. Phase III (15 working days) consists of deliberations by the board. It then makes a decision concerning the proposed CDM project after ten working days. An approval or a rejection letter is issued five days after the board's decision.

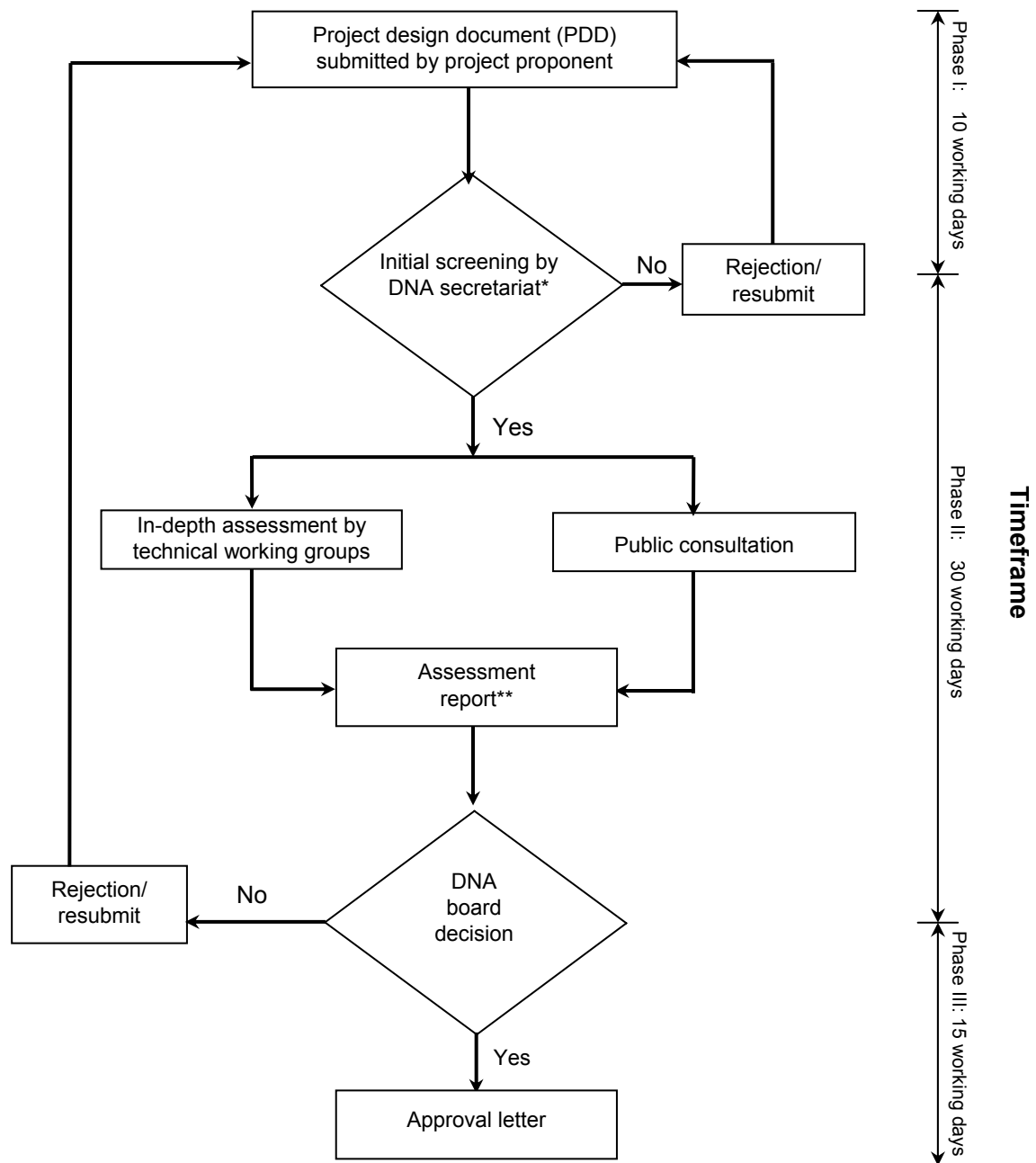


Figure 6.1. Flow diagram of the approval process for CDM projects in Cambodia

Source: CCCO 2004.

*The PDD document must be completed when submitted and include relevant official investment approvals, if any (from the Council of Ministers, CDC, province, etc.) and an environmental impact assessment report, if required.

**Should include a project technical assessment report from the working group(s) and a summary of the positions of the main stakeholders groups.

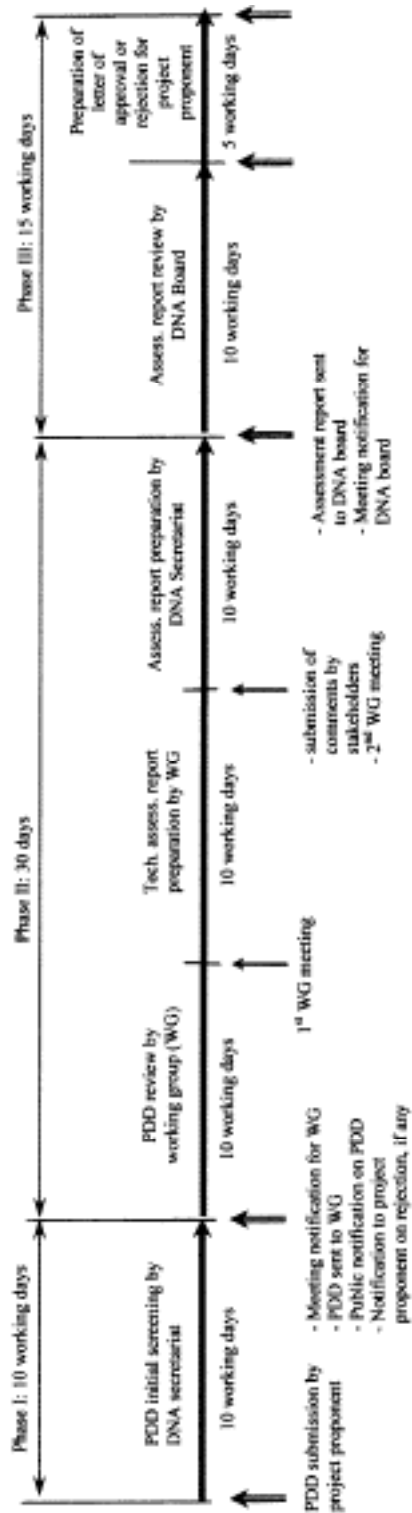


Figure 6.2. Timeframe and activities for assessment of proposed CDM projects in Cambodia (draft)

7. LAWS AND REGULATIONS

7.1 Investment laws

The Law on Investment, promulgated in 1994 and amended in 2003, provides the institutional and legal basis for investments in Cambodia (box 7.1). The Council for the Development of Cambodia (CDC) is the governmental body responsible for the development and management of FDI and is the executive agency responsible for defining investment strategies and accepting or rejecting investment proposals. It is divided into two executive boards: (1) the Cambodian Rehabilitation and Development Board (CRDB) and (2) the Cambodian Investment Board (CIB). The CRDB coordinates international assistance and public investment, while the CIB is responsible for private investments. Note that Cambodian investors are not required to apply for a license with the CDC and may register directly with the Ministry of Commerce (MOC).

Box 7.1. Summary of main investment laws

- Law on Investment of the Kingdom of Cambodia (1994)
- Law on the Amendment to the Law on Investment of the Kingdom of Cambodia (2003)
- Sub-Decree No. 70 on the Organization and Functioning of the Council for the Development of Cambodia (2001)
- Sub-Decree on the Amendment of Sub-Decree 70 (2001)
- Sub-Decree No. 88 on the Implementation of the Law on Investment of the Kingdom of Cambodia
- Sub-Decree No. 50 on the Amendment of the Sub-Decree on the Implementation of the Law on Investment of the Kingdom of Cambodia (1997)

The CDC is defined by law as a “one-stop” service responsible for rehabilitation, development, and investment activities (Sub-Decree 70, 2001). It is a required stop for CDM project proponents in Cambodia, as an investment license is required in order to be able to benefit from government incentives, including preferential taxation. The investment approval process is expected to take a maximum of 28 days (CDC 2004). The CDC is in the process of being restructured so as to be able to provide a full range of services to investors, including the following: information, investment application and approval, customs duty and tax exemption, visa and work permits, and company registration. The steps for obtaining a CDC investment

license are outlined below (box 7.2).¹⁴ A feasibility study must be submitted with the application, which should address the following points: proposed market(s) for the product(s), perceived demand, pricing techniques and competition for the product(s), proposed techniques for manufacturing and production, proposed import and export ratios, proposed employment ratios for Cambodian and foreign nationals, financial and technical analysis, proposed earnings, an environmental impact study (including detailed plans for the treatment and disposal of waste), and a proposed human development resources plan.

The government has not yet determined the modalities governing transactions where a foreign purchaser is interested in the sole acquisition of certified emissions reduction (CER) credits or other forms of carbon credits without investing in project development in Cambodia. It is likely that carbon credits would be considered commodities for export and, as such, exempted from the value-added tax (VAT). Furthermore, there is no specific requirement for buyers of carbon credits to be financially involved in project development in the country itself.

Box 7.2. Steps to getting an investment license in Cambodia

1. Submit application to the Cambodian Investment Board (CIB) of the Council for the Development of Cambodia (CDC), which should include memoranda, articles of association, and a feasibility study.
2. Meet with members of the CIB/CDC to provide additional information during the review process.
3. Approval by the CIB/CDC within 28 days.
4. Commercial registration of the company with the Ministry of Commerce.

7.2 Investment restrictions relevant to CDM projects

Foreign citizens and entities cannot own land in Cambodia. The ownership of land for the purpose of carrying out investment projects shall thus be vested in persons holding Cambodian citizenship or in Cambodian entities. Use of land by foreign investors, however, is permitted on long-term leases and limited short-term leases, which are renewable.¹⁵

Investments in sawn timber, veneer, plywood, and wood-based products, as well as utilizing local logs as raw material, are closed to both foreign and national investors.

7.3 Environmental laws

The 1996 Law on Environmental Protection and Natural Resources Management, and related sub-decrees, provides the legal framework for the protection of environmental quality and assessing the environmental impacts of proposed projects (box 7.3). It stipulates that all natural resources of the Kingdom of Cambodia, including ecological systems and natural

14. The complete application form for a CIB license is provided in the appendices.

15. As stipulated in the 2003 Law on the Amendment to the Law on Investment.

resources, shall be used in a sustainable and rational manner, with sustainable development being the key principle.

According to the nature and size of their activities, CDM projects undertaken in Cambodia may be required by law to conduct an environmental impact assessment (table 7.1). The 1999 Sub-Decree No. 72 details the provisions of the EIA process as well as a list of projects requiring an EIA. The Ministry of Environment is responsible for the implementation of the EIA sub-decree. Investors will be able to get the necessary information pertaining to the CDM and EIA from Cambodia's DNA, the MOE's Cambodian Climate Change Office.

Box 7.3. Summary of Cambodia's main environmental laws

- Law on Environmental Protection and Natural Resources Management (1996)
- Sub-Decree No. 72 on Environmental Impact Assessment Process (1999)
- Sub-Decree No. 27 on Water Pollution Control (1999)
- Sub-Decree No. 36 on Solid Waste Management (1999)
- Sub-Decree No. 42 on Air Pollution Control and Noise Disturbance (2000)

CDM energy projects consisting of power-producing facilities with capacities over five MW require an EIA, with the minimum limit set at one MW for hydropower stations. Thus, even mini-hydro schemes require one. Methane capture projects at dumpsites, whatever their capacity, are categorized as waste-processing facilities and thus require an EIA. All other power-generating projects with installed capacity below five MW do not require one.

CDM afforestation and reforestation projects below 10,000 ha in size are unlikely to require an EIA, as they fall into activities on agricultural and agro-industrial land. If more than 500 ha of forest need to be cleared for the project, however, then an EIA must be carried out. Combined CDM forestry and paper-processing projects require an EIA for their paper-processing component.

Table 7.1. List of potential CDM projects requiring an environmental impact assessment

Projects	Size/capacity
Paper factory	All sizes
Pulp and paper processing	All sizes
Waste processing	All sizes
Power plants	≥ 5 MW
Hydropower	≥ 1 MW
Logging	≥ 500 ha

Land covered by forest	≥ 500 ha
Agriculture and agro-industrial land	≥ 10,000 ha

In addition to the Sub-Decree on Environmental Impact Assessment Process, three separate sub-decrees regulate water pollution, air pollution and noise disturbance, and solid waste management, respectively. All CDM projects must comply with the provisions of these three sub-decrees. The Sub-Decree on Water Pollution Control details hazardous substances, effluent standards, and allowable limits for pollutants discharge in public waters. The Sub-Decree on Air Pollution Control and Noise Disturbance similarly details ambient air quality standards and maximum levels of discharge from mobile and immobile sources in ambient air. The Sub-Decree on Solid Waste Management regulates hazardous waste from a variety of activities, including sludge waste from factory wastewater treatment and product manufacturing processes, combustion residues from coal-fired power plants, and agricultural chemical waste.

7.4 Other regulations applicable to CDM energy projects

The 2001 Electricity Law of the Kingdom of Cambodia is applicable to CDM projects generating electricity. The law sets forth the principles that govern the operations of the electric power industry and the activities of licensees providing electric power services. These principles are articulated in article 2 of the law, as follows: (i) the protection of the rights of consumers to receive reliable and adequate supply of electric power services at reasonable cost, (ii) the promotion of private ownership of the facilities for providing electric power services, and (iii) the establishment of competition wherever feasible within the electric power sector.

The Electricity Law also established a body for regulating electric power services: the Electricity Authority of Cambodia (EAC). Under article 5 of the law, each power service supplier is required to have a license issued by the EAC, an autonomous regulatory agency. Its duties include the issuance, revision, suspension, revocation, or denial of licenses for the supply of electricity services. It approves tariff rates, except where those rates are “established pursuant to a competitive market-based process.” The law also gives the EAC the duty of ensuring that the provision of services is performed in a “transparent manner” and that the public is informed about affairs within its duties. Electricity rates are thus not regulated by the government but are determined by market forces. The exception is the social or lifeline tariff used by Electricité du Cambodge when charging low-income households.

Article 29 of the Electricity Law lists eight different types of licenses: (1) generation license, (2) transmission license, (3) dispatch license, (4) distribution license, (5) bulk sale license, (6) retail license, (7) subcontract license, and (8) consolidate license. A subcontract licensee operates according to a subcontract agreement with an existing licensee. A consolidate license is a combination of some or all of the different types of licenses. CDM energy projects generating electricity require a generation license.

The EAC’s Web site, which is listed in the appendices, provides guidelines to investors who wish to apply for generation, distribution, or consolidated licenses.¹⁶ A copy of the power purchase agreement with potential power purchasers is required for generation licenses.

¹⁶Application forms are available from the Electricity Authority of Cambodia (see appendix VI).

7.5 Regulations applicable to CDM forestry projects

Two legal instruments are applicable to CDM forest projects: the Forestry Law (2002) and the Draft Community Forestry Sub-Decree (2003).

The Forestry Law governs the management, harvesting, use, development, and reservation of all forests, whether natural or planted, and is thus relevant to CDM sink activities. The principal objective of the law is to ensure the sustainable management of forests for present and future generations in terms of social, economic, and environmental benefits, including the conservation of biological diversity and cultural heritage. The law stipulates that participation of the general population in reforestation shall be encouraged through community mobilization. Tree planting on private land may be done by private entities. Article 47 states: “[A]nyone that has planted trees on State or private land has the right to maintain, develop, use, sell, or distribute the products.” Further rules and regulations concerning the potential social and environmental impact of selected species are to be developed by the Ministry of Agriculture, Forestry and Fisheries.

The 2003 Sub-Decree on Community Forestry provides the legal framework for the establishment, use, and management of forest resources by communities. This sub-decree thus governs CDM sink projects implemented by local people, including those eligible for simplified methodologies. Under the sub-decree a community is defined as “a group of residents in one or more villages in the Kingdom of Cambodia who share a common social, cultural, traditional and economic interest in the sustainable use of an area of natural resources, which they live in or near, for subsistence and livelihood improvement purposes.” A “community forestry agreement” is defined as a written agreement between communities and the state authority responsible for monitoring and evaluating community forestry activities and ensuring the sustainable use of forest resources. The Ministry of Agriculture, Forestry and Fisheries has jurisdiction over community forestry management outside of protected areas and the Angkor Management Area, which respectively fall under the purview of the Ministry of Environment and the Authority for the Protection and Management of Angkor and the Region of Siem Reap (APSARA Authority). Under the law, communities are responsible for establishing a forestry management plan and rules governing sustainable use, rights of access, user fees, benefit sharing, and fines for violations, and they have the right to harvest and sell mature timber as well as non-timber forest products. There is a moratorium on timber harvest in the first five years of approval of a community forestry agreement. The law includes the following as non-timber forest products: deadwood, wild fruits, products from beehives, and resin. Community forestry agreements remain in effect for a period of fifteen years from the date of their approval, which may be renewed.

Community forestry in Cambodia, as discussed in earlier sections, pre-dates the formulation of the sub-decree, which mainly aims to provide an oversight role for central government agencies and a legal basis for community rights. To a large extent, community forestry initiatives remain driven by donors and NGOs.

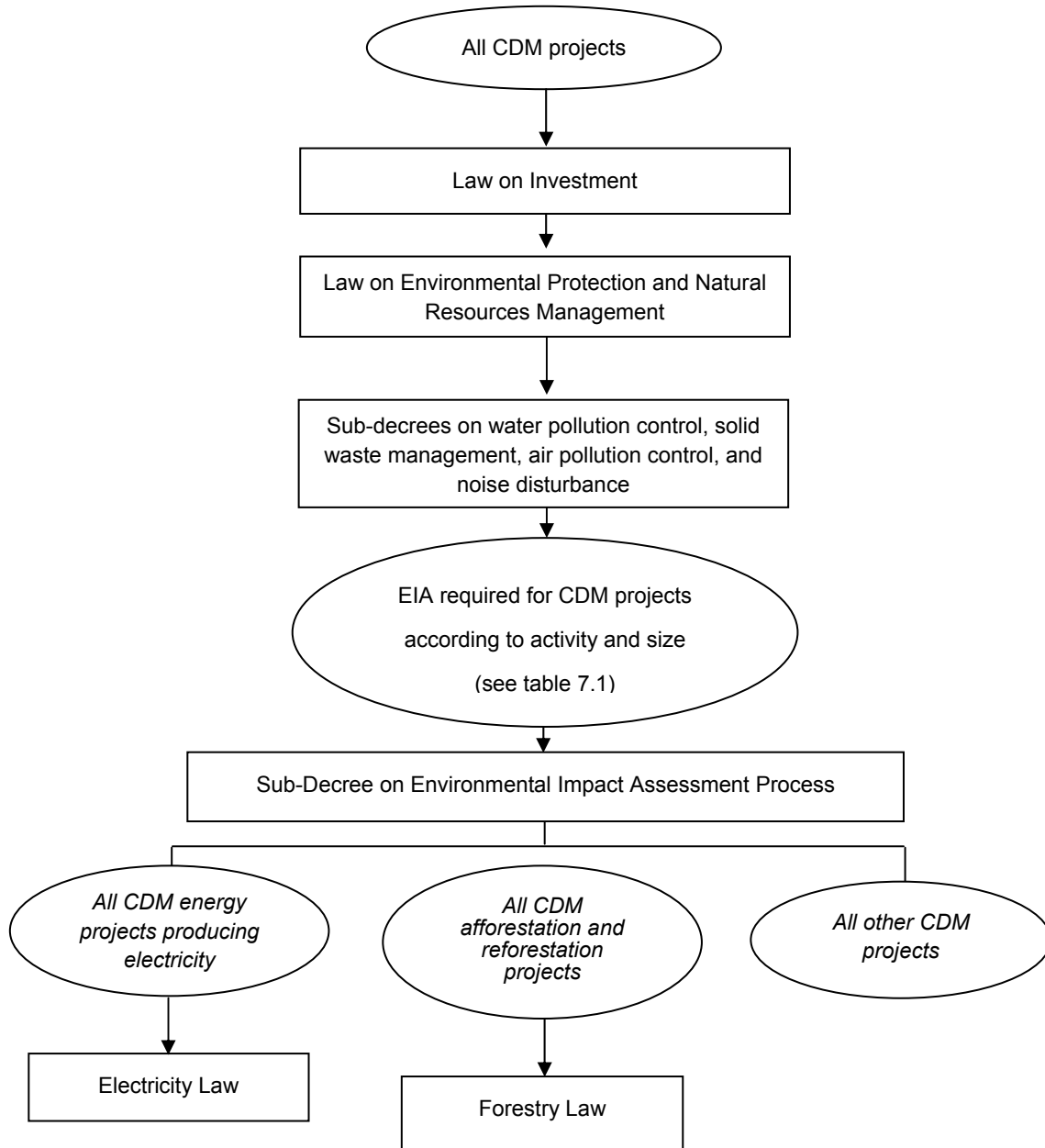


Figure 7.1. Summary of key legislation applicable to CDM projects in Cambodia

8. FINANCING AND FISCAL ISSUES

8.1 Financial system

Cambodia is to a large extent a cash economy with limited banking intermediation (World Bank 2004), and its financial system remains underdeveloped. The first post-war banks were established in the early 1990s. The financial sector currently consists of the National Bank of Cambodia, 13 commercial banks, four banks specialized in rural development, ten micro-finance institutions, and four insurance companies (ICC 2003). With the exception of micro-credit organizations, most financial institutions are located in Phnom Penh. The largest five banks together total more than 50 percent of banking assets and deposits. Deposits in US dollars, the primary medium of exchange in Cambodia, represent more than 90 percent of all deposits. Bank loans and deposits represent 8 and 10 percent, respectively, of GDP—one of the lowest in the world. There is currently no capital market or securities exchange in Cambodia. The bulk of money in the economy is held outside the formal financial system, which is characterized by high operating costs, poor asset quality, and low public confidence (ADB 2001).

Generally, Cambodian firms do not benefit from external financing (World Bank 2004). Local commercial banks provide only 2.2 percent of overall working capital and 2.8 percent of investment capital. In contrast, networks of families and friends provide more than a quarter of corporate financing, with small- and medium-size firms more dependent on family and friends than larger ones. Even foreign-invested firms rely on these networks for almost 10 percent of their working and investment capital. The reasons for this situation are two-fold. First, interest rates on commercial loans are often in excess of 20 percent, with a strong prevalence of short-term lending. The spread between loan and deposit interest rates is estimated at around 13 percent (ADB 2001). Banks prefer to issue short-term three- to six-month loans that are rolled over. This stems from little competition in the banking sector and the high risks of default associated with corporate lending. The lack of financial, accounting, and auditing standards increases the risk and cost of banking operations, as does the absence of an enforceable collateral registration system. Thus, only well known and successful firms may benefit from bank loans. Second, banks require full disclosure of financial information, including assets and liabilities. This may discourage firms that closely guard information to apply for bank loans.

Donors and the government have both recognized that Cambodia's weak financial infrastructure hinders economic development (ADB 2001; UNCTAD and ICC 2003; World Bank 2004). With international support, Cambodia has developed a financial sector blueprint for 2001 to 2010. Despite existing bottlenecks, the banking system is able to provide foreign investors with a wide range of financial services. There is no restriction on foreign exchange operations, including all types of international transfers and settlements. In addition, there is no reporting requirement for investors sending or receiving international funds. The overall objective of the blueprint is to have the elements of a sound market-oriented financial system in place by 2010. The primary driving force for the development of Cambodia's financial system will be competitiveness, supported by a more transparent regulatory system. An integrated and competitive financial system will offer a broader variety of products to a wider range of clients, including Cambodians from lower economic strata. The blueprint foresees increased domestic

resource mobilization and growth-oriented investments, thus leading to a gradual decrease in the spread between loan and deposit interest rates. The speed of reduction of the spread will be determined by (1) continued macroeconomic stability, (2) improved legal and financial infrastructure, and (3) increased competition among banks (ADB 2001). In addition, reduced uncertainties in the legal system and increased efficiency are expected to enable banks to increase average loan maturity. In support of the development of its financial sector, Cambodia's government has committed to reforming its legal system with regard to secured transactions, leasing, and insolvency.

With regard to the CDM and climate change, the awareness of local financial institutions remains very low, and it is doubtful at this stage that CDM project developers would be able to secure more advantageous financing conditions than non-CDM project developers. Financial returns, risk considerations, and types of activities are the main factors for local banking intermediation. Sustainable energy projects, whether in energy efficiency or renewable energy, may be perceived as novelties when compared to more traditional investments. This situation is certainly not particular to Cambodia, as the sophistication of CDM financing requires more specialized and advanced models of banking intermediation. Although the financial sector blueprint foresees a gradual improvement through increased resource mobilization and decreased interest rates, the immediate impacts on the development of CDM projects are undetermined. From an additionality point of view, it may thus be argued that the inability to secure local debt funding would constitute a significant barrier to CDM investments in Cambodia.

8.2 Fiscal issues

The taxes applicable to CDM projects in Cambodia are the profit tax, value-added tax (VAT), import duties, patent tax, and registration tax on land and vehicles (table 8.1). All legal entities defined as being "resident taxpayers" are liable for Cambodian taxes. A legal entity is a resident taxpayer if any one of the following criteria is fulfilled: (1) the legal entity has a principal place of business in Cambodia; (2) it is organized or managed in Cambodia; (3) it has a fixed place of business, the branch of a foreign company, or agent resident in Cambodia through whom a non-resident carries on its business in Cambodia; or (4) any other association through which a non-resident engages in "economic activity" in Cambodia. A "permanent establishment," as defined under criteria 3 and 4, is only taxable on Cambodian sources of income.

- *Profit tax.* A profit tax is levied on all businesses. It is calculated either on actual profit or estimated profit. The corporate tax rate is 20 percent for all taxpayers. Taxpayers are required to make a profit tax prepayment on a monthly basis, equivalent to 1 percent of monthly turnover. Taxable profit is defined as the net profit obtained from all results of all types of operations realized by taxpayers.
- *Value-added tax.* A standard 10 percent VAT is chargeable on a wide range of goods and services, including imported goods and used goods. On imports, the VAT is payable on the value of the import, including customs, insurance, and freight. Exports of goods and services are exempted.
- *Import duties.* Import duties, as set by the annual customs tariff schedules, range from 7 to 35 percent. Humanitarian aid and goods related to international relations are exempted.
- *Patent tax.* All businesses must pay an annual patent or "business registration tax" of \$300 to tax authorities.

- *Registration tax on land and vehicles.* A 4 percent registration tax is payable on the ownership of real property and immovable assets as a result of either direct transfer or contribution to the capital of an enterprise. Taxation is based on the assessed value of the land. A 4 percent registration tax is also payable on the transfer of ownership of motor vehicles and boats.

Table 8.1. Summary of Cambodian tax rates

Profit tax (corporate tax)	Value-added tax	Import duties	Patent tax (business registration)	Registration tax on land and vehicles
20%	10%	0%, 7%, 15%, or 35%	\$300 annually	4% of value

9. GOVERNMENT INCENTIVES

9.1 Foreign investment incentives

The Royal Government of Cambodia is aiming to create an environment conducive to the involvement of the private sector and to effectively promote and facilitate foreign and local investments through a speedy approval procedure. Cambodia offers foreign investors what may be one of the most competitive investment packages in the region (UNCTAD and ICC 2003). The 2003 Amendment to the Law on Investment offers the following advantages to eligible investors (CDC 2004):

4. Automatic tax holiday of three years, with up to three additional years, beginning on the first year that profit is made or three years from first revenues, whichever comes first (see below for further discussion)
5. Exemption from import duties for construction materials, production equipment, and input materials for export-oriented investment projects and for physical infrastructure and energy projects
6. Guarantee against nationalisation
7. Renewable land leases of up to 99 years on concession land for agricultural purposes
8. Exemption from export tax
9. Employment of foreign expatriates allowed where no qualified Cambodian nationals are available
10. No price controls on products and services produced by investment projects
11. No nationalisation adversely affecting the property of investors
12. Remittance of foreign currencies abroad

In addition to its membership in the WTO, Cambodia has signed bilateral investment agreements with other countries (box 9.1), including a number of signatories of the Kyoto Protocol. The agreements provide reciprocal national treatment to investors, preclude unlawful or discriminatory expropriation, guarantee the repatriation of investments, and provide the settlement of investment disputes through arbitration.

Box 9.1. Countries with which Cambodia has signed major bilateral investment treaties

• China	• Malaysia	• Netherlands
• France	• Republic of Korea	
• Germany	• Switzerland	

9.2 Additional tax incentives

As discussed in the previous section, an automatic tax holiday of three years is granted to foreign direct investment projects in Cambodia, and an additional three years may be awarded for eligible projects. This section discusses incentives provided by the Sub-Decree on the

Implementation of the Law on Investment, which was enacted in 1997 and is likely to be revised to conform to the 2003 Amendment of the Law on Investment. Box 9.2 summarizes the sectors relevant for CDM projects to which incentives may apply.

Box 9.2. Potential CDM investment sectors to which incentives apply

- Crop production
 - paddy farming on land larger than 1,000 ha
 - all types of cash crops on land larger than 500 ha
 - vegetable farming on land larger than 50 ha
- Livestock production
 - livestock of more than 1,000 head
 - dairy farming of more than 100 head
- Manufacture of paper and allied products (with investment capital greater than \$1 million)
 - tree plantations for paper and pulp mills
 - paper production
 - paperboard mills
 - paperboard containers
- Physical infrastructure facilities to support the tourism and cultural sectors
- Production and exploitation activities to protect the environment

Note: According to Sub-Decree 88, 1997.

According to Sub-Decree 88, production and exploitation activities to protect the environment are eligible for tax incentives. Thus, it may be argued that all CDM projects fall under this category, as their aim is to assist developing countries in reducing GHG emissions while simultaneously achieving sustainable development objectives.

For projects in sectors that are eligible for incentives, a matrix divided into economic and social criteria is further applied to determine the number of additional years of tax holidays that can be granted. A scale of values corresponds to each criterion, usually a percentage, and the total is used to determine the number of additional tax holiday-years to be granted to the investment project. The two social criteria used are employment of women and employment of disabled persons (in percentages of manpower). Economic criteria include the location of the project in a disadvantaged province, investment amount, number of Cambodian employees,

percentage of production exported, percentage of value added, percentage of local resources used, and days of training for Cambodian staff.¹⁷

9.3 Renewable energy incentives

Cambodia's Renewable Electricity Action Plan (REAP), supported by the World Bank, is an initiative to assist Cambodia in the adoption of renewable energy technologies (REAP 2001). REAP, which began its activities in 2001, is expected to extend over a decade (REAP 2001; World Bank 2002). Its main objective is "to improve the living standards of Cambodian people, especially the rural communities, by working together and sharing knowledge and information to formulate effective strategies and a work plan for the development of affordable and reliable electricity from renewable electricity."

REAP envisions an active partnership between the public and private sectors to create a favourable environment for investment opportunities in renewable electricity, in particular in hydroelectricity and solar installations. The vision of REAP is a situation where the electrification of rural areas fulfils the needs of communities and also raises their standard of living, while simultaneously "improving and sustaining the integrity of the natural world." More specifically, REAP has set a list of targets to be reached over the coming decade (box 9.3).

Box 9.3. Ten-year targets of the Renewable Electricity Action Plan

- Six megawatts from renewable sources
- 100,000 households served
- 10,000 solar home systems installed
- Profitable, demand-driven renewable electricity markets

Source: World Bank 2002.

To achieve its objectives, REAP will establish the Rural and Renewable Electrification Fund (REF) as an independent entity with legal autonomy (box 9.4). There are three layers in the REF's "governance/management structure": (1) the Minister for Industry, Mines and Energy, and the Minister of Finance, assisted by the general assembly of stakeholders as advisors; (2) a board of directors called the Rural Electrification Board (REB); and (3) the REF's executive director and secretariat. The assembly of stakeholders includes donors, finance institutions, renewable energy enterprises, suppliers of renewable energy goods and services, government ministries and agencies involved in rural development, and NGOs.

Of particular interest to CDM project developers is the availability of subsidies for renewable energy projects. The REF will use subsidies for promotional and technical assistance activities, as well as for "hard investments" in renewable electricity projects.

17. The criteria matrix is provided in appendix IV.

The policy of the REF for providing grants to renewable energy technology projects is articulated in a World Bank concept paper, as follows (World Bank 2002): “The REF promotes investments in renewable energy technology, RET, as long as they are the least cost solutions for satisfying the power demand of individual consumers or, for grid-connected electricity generation using RET, can supply power at least as cheap as competing conventional generators. Solar home systems for isolated households living too far from the grid to make grid connection an economically feasible option within a five-year horizon or beyond are [*sic*] one example. Another [*sic*] are grid-connected mini-hydros and generators using biomass resources.” This policy is still under discussion. The funding of the REF will initially come from donor grants and concession loans. In the longer term, however, the funds may be replenished through a fee from electricity transmission and consumption.

Box 9.4. Roles of the Rural and Renewable Electrification Fund

<p>Provide cost-effective electricity supply to rural consumers by</p> <ul style="list-style-type: none"> • channelling cost-effective grants and technical assistance (TA), such as grants for TA and soft investments for rural electricity enterprises, consultants, financial intermediaries, and construction companies involved in rural energy projects; • providing subsidies for hard investments to all project developers, including the EDC; and • granting support to jump-start the solar home systems market.

Source: Adapted from World Bank 2002.

As discussed in Williamson et al. (2004), the REF will subsidize rural electrification, which will provide an additional source of funding for potential CDM projects. Mini-hydro and PV projects, however, would have to be bundled in order to achieve economies of scale in terms of CDM transaction costs. As currently envisaged, the REF secretariat will call for proposals from private developers to implement rural electrification solutions in specific areas, including the following:

- new mini-grid based on generation from diesel, solar, or hydropower generation;
- extension of an existing small grid system to connect new households;
- solar home systems; and
- mini- or micro-hydropower systems.

Proposals will be selected according to eligibility criteria, yet to be developed, and successful proposals will receive an REF grant. The grant is expected to subsidize about 25 percent of total project costs, while private equity from project developers is expected to provide another 25 percent, and a bank loan the remaining 50 percent (proposed subsidy rates are shown in table 9.1). For the time being, however, the REF does not intend to provide any incentives for bioenergy projects (appendix VI provides Web references for more information).

Table 9.1. Proposed Rural and Renewable Electrification Fund subsidy rates, in US dollars

Project type	Total cost	REF grant
New household connected to existing diesel mini-grid	\$150	\$45
Mini-hydro (0.75–5 MW)	\$1,744/kW installed	\$400/kW installed
Micro-hydro (average 50 kW)	\$2,700/kW installed	\$400/kW installed
Solar home system	\$400/set of 40 watt peak (Wp)	\$100/set of 40 Wp

Source: Williamson et al. 2004.

APPENDICES

- iv. List of Annex I and Annex B Parties
- v. List of consolidated and approved methodologies
- vi. Simplified baseline and monitoring methodologies
- vii. Sustainable development criteria and assessment matrix
- viii. Contact persons in government agencies
- ix. Relevant Web sites
- x. Glossary

Appendix I. List of Annex I and Annex B Parties*

European Union (15 member states)			Economies in Transition****		
Party	Target**	1990 emissions (million tCO ₂ e)	Party	Target**	1990 emissions (million tCO ₂ e)
Portugal	27.0%	61.4	Russian Federation	0%	3,040.1
Greece	25.0%	104.9	Ukraine	0%	919.2
Spain	15.0%	287.6	Poland	-6.0%	564.4
Ireland	13.0%	53.2	Romania	-8.0%	264.3
Sweden	4.0%	72.8	Czech Republic	-8.0%	192.0
Finland	0.0%	77.2	Bulgaria	-8.0%	157.1
France	0.0%	568.2	Hungary	-6.0%	101.6
Netherlands	-6.0%	210.0	Slovakia	-8.0%	72.2
Italy	-6.5%	508.6	Lithuania	-8.0%	51.0
Belgium	-7.5%	144.4	Estonia	-8.0%	43.5
United Kingdom	-12.5%	744.1	Latvia	-8.0%	29.0
Austria	-13.0%	78.1	Slovenia	-8.0%	20.2
Denmark	-21.0%	69.2	Croatia***	-5.0%	32.0
Germany	-21.0%	1,213.5	Belarus***		133.6
Luxembourg	-28.0%	13.4			
EU	-8.0%	4,225.1			
Other Parties					
Iceland	10.0%	2.8	Japan	-6.0%	1,187.1
Australia***	8.0%	425.2	United States***	-7.0%	6,139.6
Norway	1.0%	52.0	Switzerland	-8.0%	53.1
New Zealand	0%	61.8	Liechtenstein	-8.0%	0.2
Canada	-6.0%	607.6	Monaco***	-8.0%	0.1
			Turkey***		

Source: Ministry of Environment, Japan, and IGES (March 2005).

*Croatia, Slovenia, Liechtenstein, and Monaco have GHG emissions reduction targets, but they are not Annex I Parties to the UNFCCC.

**The target is the percentage amount of GHG emissions to be reduced from the 1990 level.

***Countries that had not ratified the Kyoto Protocol as of March 2005.

****Some Parties of the EU's Economies in Transition do not have their base year for GHG emissions set as 1990, such as Bulgaria (base year is 1988), Hungary (1985–87 average), Poland (1988), Romania (1987), and Slovenia (1986).

Appendix II. List of consolidated and approved methodologies

Methodology number	Methodology title (including baseline and monitoring methodologies)	Sectoral scope	Consolidated sources or approval history of methodologies
Consolidated methodologies			
ACM0001	Consolidated methodology for landfill gas project activities. (The additionality of the project activity shall be demonstrated and assessed using the tool for the demonstration and assessment of additionality.)	13	AM0002 AM0003 AM0010 AM0012
ACM0002	Consolidated methodology for grid-connected electricity generation from renewable sources. (The additionality of the project activity shall be demonstrated and assessed using the tool for the demonstration and assessment of additionality.)	1	NM0001-rev NM0012-rev NM0023 NM0024-rev NM0030-rev NM0036 NM0043 NM0055
ACM0003	Emissions reduction through partial substitution of fossil fuels with alternative fuels in cement manufacture	4	NM0040 NM0048-rev
Approved methodologies			
AM0001	Incineration of HFC-23 waste streams	11	NM0007-rev
AM0002	Greenhouse gas emission reductions through landfill gas capture and flaring where the baseline is established by a public concession contract	13	NM0004-rev
AM0003	Simplified financial analysis for landfill gas capture projects	13	NM0005-rev
AM0004	Grid-connected biomass power generation that avoids uncontrolled burning of biomass	1	NM0019
AM0005	Small grid-connected zero-emissions renewable electricity generation	1	NM0023
AM0006	GHG emission reductions from manure management systems	13, 15	NM0022-rev
AM0007	Analysis of the least-cost fuel option for seasonally-	1, 4	NM0028

Methodology number	Methodology title (including baseline and monitoring methodologies)	Sectoral scope	Consolidated sources or approval history of methodologies
	operating		
AM0008	Industrial fuel switching from coal and petroleum fuels to natural gas without extension of capacity and lifetime of the facility	4	NM0016-rev
AM0009	Recovery and utilization of gas from oil wells that would otherwise be flared	10	NM0026
AM0010	Landfill gas capture and electricity generation projects where landfill gas capture is not mandated by law	1, 13	NM0010-rev
AM0011	Landfill gas recovery with electricity generation and no capture or destruction of methane in the baseline scenario	13	NM0021
AM0012	Biomethanation of municipal solid waste in India, using compliance with MSW rules	13	NM0032
AM0013	Forced methane extraction from organic wastewater treatment plants for grid-connected electricity supply	13	NM0039 NM0085
AM0014	Natural gas-based package cogeneration	1, 4	NM0018-rev
AM0015	Bagasse-based cogeneration connected to an electricity grid. (The additionality of the project activity shall be demonstrated and assessed using the tool for the demonstration and assessment of additionality.)	1	NM0001-rev
AM0016	Greenhouse gas mitigation from improved animal waste management systems in confined animal feeding operations	13, 15	NM0034-rev2
AM0017	Steam system efficiency improvements by replacing steam traps and returning condensate	3	NM0017-rev
AM0018	Steam optimization systems. (The additionality of the project activity shall be demonstrated and assessed using the tool for the demonstration and assessment of additionality.)	3	NM0037-rev
AM0019	Renewable energy project activities replacing part of the electricity production of one single fossil-fuel-fired power plant that stands alone or supplies electricity to a grid,	1	NM0053

Methodology number	Methodology title (including baseline and monitoring methodologies)	Sectoral scope	Consolidated sources or approval history of methodologies
	excluding biomass projects. (The additionality of the project activity shall be demonstrated and assessed using the tool for the demonstration and assessment of additionality.)		
AM0020	Baseline methodology for water pumping efficiency improvements. (The additionality of the project activity shall be demonstrated and assessed using the tool for the demonstration and assessment of additionality.)	3	NM0042-rev
AM0021	Baseline methodology for decomposition of N ₂ O from existing adipic acid production plants	5	NM0061
AM0022	Avoided wastewater and on-site energy use emissions in the industrial sector	13	NM0041-rev2

Source: UNFCCCa 2005.

Appendix III. Simplified baseline and monitoring methodologies

Type I. Renewable energy projects
AMS-I.A. Electricity generation by the user
AMS-I.B. Mechanical energy for the user
AMS-I.C. Thermal energy for the user
AMS-I.D. Renewable electricity generation for a grid
Type II. Energy-efficiency improvement projects
AMS-II.A. Supply-side energy-efficiency improvements - transmission and distribution
AMS-II.B. Supply-side energy-efficiency improvements - generation
AMS-II.C. Demand-side energy-efficiency programmes for specific technologies
AMS-II.D. Energy-efficiency and fuel-switching measures for industrial facilities
AMS-II.E. Energy-efficiency and fuel-switching measures for buildings
AMS-II.F. Energy-efficiency and fuel-switching measures for agricultural facilities and activities
Type III. Other project activities
AMS-III.A. Agriculture
AMS-III.B. Switching fossil fuels
AMS-III.C. Emission reductions by low-greenhouse gas emitting vehicles
AMS-III.D. Methane recovery
AMS-III.E. Avoidance of methane production from biomass decay through controlled combustion

Source: UNFCCCb 2005.

Appendix IV. Sustainable development criteria and assessment matrix

CAMBODIAN DESIGNATED NATIONAL AUTHORITY (DRAFT 7, OCTOBER 26, 2005. DO NOT QUOTE) Sustainable Development Criteria for Proposed CDM Projects

The sustainable development matrix is the tool that Cambodia has developed to assess proposed CDM projects to ensure they meet Cambodia's sustainable development objectives. The matrix focuses on the economic, social, environmental and technology transfer aspects of development, which are articulated in Cambodia's existing laws, regulations, policies, statements and commitments to international conventions (see Appendix C).

The Project Proponent must submit a PDD which outlines how sustainable development objectives are met via each of these criteria. For the DNA to be able to evaluate the project, the Project Proponent must fill out the Application Form (Appendix A) for Cambodian DNA Assessment of CDM Projects, which includes the Sustainable Development Compliance Checklist (Appendix B). The substantive parts of the information contained within the Compliance Checklist must be included in the PDD.

How to Use the Sustainable Development Matrix

The matrix tool provides guidance to the Project Proponent and assessor for each eligibility criteria, while not being prescriptive. The project should be compared against the defined baseline as outlined in the PDD:

- a positive rating would indicate best practice of a particular criterion.
- a neutral rating would indicate that the project has no significant impact (positive or negative) against a particular criterion, or is business as usual.
- a negative rating would mean that the project has serious impact against a particular criterion

The assessment shall focus on all impacts of the project, both within and outside the project boundary. Assessment of the project shall focus on all stages of the project cycle: from project construction to project decommissioning to ensure that sustainable development benefits are maximised over the life of the project.

The project must achieve a positive or neutral rating for each criterion of the 4 mentioned categories - Economic, Social, Environmental and Technology Transfer. A negative rating in one of the criteria indicates that the project does not fully meet the sustainable development goals of Cambodia (as outlined in the related laws, regulations, policies, statements and conventions); and the project should be reworked and resubmitted to the DNA. The absence of negative impacts for each criterion is considered to be the minimum threshold with which project proponents must comply.

Monitoring and Verification Plan

The Monitoring and Verification Plan (M&V) should not be limited to emission reduction aspects as outlined in the PDD. The Monitoring and Verification Plan must also cover all commitments made in the PDD as they relate to the Sustainable Development Criteria outlined in the Matrix.

The Designated Operational Entity shall verify and certify the performance of the project against commitments made in the PDD as they relate to emission reductions and the above mentioned sustainable development criteria. Failure of the project to comply with these

commitments will result in the Designated National Authority formally notifying the Executive Board of the Clean Development Mechanism and other relevant project participants.

Sustainable Development Criteria and Assessment Matrix

ELIGIBILITY CRITERIA	ASSESSMENT
Category 1. Environmental Protection and Improvement	
1.1 Contribution to mitigation of global climate change	<p>+ Reduction or avoidance in GHG emissions ↑ 0 No significant change in GHG emissions ↓ - Increase in GHG emissions</p>
1.2 Reduction in air pollution compared with the baseline scenario identified in the PDD	<p>+ Reduction in air pollutant levels compared with the baseline scenario identified in the PDD ↑ 0 No significant change in air pollutant levels compared with the baseline scenario identified in the PDD ↓ - Increase in air pollutant levels compared with the baseline scenario identified in the PDD</p>
1.3 Reduction in water pollution compared with the baseline scenario identified in the PDD	<p>+ Reduction in water pollutant levels compared with the baseline scenario identified in the PDD ↑ 0 No significant change in water pollutant levels compared with the baseline scenario identified in the PDD ↓ - Increase in water pollutant levels compared with the baseline scenario identified in the PDD</p>
1.4 Reduction in soil pollution compared with the baseline scenario identified in the PDD	<p>+ Reduction in soil pollutant levels compared with the baseline scenario identified in the PDD ↑ 0 No significant change in soil pollutant levels compared with the baseline scenario identified in the PDD ↓ - Increase in soil pollutant levels compared with the baseline scenario identified in the PDD</p>
1.5 Reduction in noise pollution compared with the baseline scenario identified in the PDD	<p>+ Reduction in noise pollution levels compared with the baseline scenario identified in the PDD ↑ 0 No significant change in noise pollution levels compared with the baseline scenario identified in the PDD ↓ - Increase in noise pollution levels compared with the baseline scenario identified in the PDD</p>
1.6 Biodiversity conservation	<p>+ Increase in indigenous biodiversity resources at the ecosystem, species and/or genetic levels, for example:</p> <ul style="list-style-type: none"> • Extension of habitat for endangered species • Multiple indigenous species activities <p>↑ 0 No significant impact on indigenous biodiversity resources at the ecosystem, species and/or genetic levels, for example:</p> <ol style="list-style-type: none"> a. Single species activities adequately addressed with corridors and buffer zones; b. Management/implementation plan in place to protect species and their habitats;

ELIGIBILITY CRITERIA	ASSESSMENT
	<p>↓</p> <ul style="list-style-type: none"> - Reduction in indigenous biodiversity resources at the ecosystem, species and/or genetic levels, for example: <ul style="list-style-type: none"> • Clearing or flooding of ecological habitats • Removal and/or impact on endangered species and/or their habitat • Removal of existing diverse species cover and replacement with single or dual species
1.7 Sustainable use of land resources	<p>+ Improvement of land resources</p> <p>↑</p> <p>0 No significant impact on land resources</p> <p>↓</p> <ul style="list-style-type: none"> - Unsustainable land use or degradation of land
1.8 Rational use of mineral resources	<p>0 Rational use of mineral resources</p> <p>↓</p> <ul style="list-style-type: none"> - Inefficient use of mineral resources
1.9 Sustainable use of forest resources	<p>+ Improvement of forest resources</p> <p>↑</p> <p>0</p> <ul style="list-style-type: none"> • No significant impact on forest resources • Management/implementation plan in place to mitigate the impacts <p>↓</p> <ul style="list-style-type: none"> - Unsustainable use or depletion of forest resources
1.10 Sustainable use of water resources	<p>+ Improvement of water resources</p> <p>↑</p> <p>0</p> <ul style="list-style-type: none"> • No significant impact on water resources • Management/implementation plan in place to mitigate the impacts <p>↓</p> <ul style="list-style-type: none"> - Unsustainable use or depletion of water resources
1.11 Archaeological, cultural, historical and spiritual heritage	<p>+ Enhancement of the preservation of archaeological, cultural, historical or spiritual sites</p> <p>↑</p> <p>0 No significant impact on archaeological, cultural, historical or spiritual sites</p> <p>↓</p> <ul style="list-style-type: none"> - <ul style="list-style-type: none"> • Adverse impact on archaeological, cultural, historical or spiritual sites • Adverse impact on people's access to archaeological, cultural, historical or spiritual sites
Category 2. Social – Enhancement of Income and Quality of Life	
2.1 Poverty alleviation	<p>+ <ul style="list-style-type: none"> • Increase of income generation opportunities for local people • Improvement of livelihood of local people, in particular the poor and the disadvantaged groups </p> <p>↑</p> <p>0 No significant impact on livelihoods of local people</p>

ELIGIBILITY CRITERIA	ASSESSMENT
	<p>↓</p> <p>-</p> <ul style="list-style-type: none"> • Removal of ability of local people to access resources for income generation • Displacement of people without provision of alternatives for income generation
2.2 Provision of community infrastructures	<p>+ Provision of community infrastructures (wells, roads, schools etc.)</p> <p>↑</p> <p>0 No significant impact on community infrastructures</p> <p>↓</p> <p>- Degradation of community infrastructures (wells, roads, schools etc.) by project related activities</p>
2.3 Stakeholder consultation	<p>+</p> <ul style="list-style-type: none"> • Stakeholder consultation from the beginning of the project • Project designed in collaboration with stakeholders • Local stakeholders support the project • Participation of stakeholders in the decision making process <p>↑</p> <p>0 Stakeholders were consulted and minimal impact identified</p> <p>↓</p> <p>-</p> <ul style="list-style-type: none"> • No consultation of stakeholders • Disregard of stakeholders' comments • Consultation of stakeholders only at the end of the project design with no opportunity to modify the project • Local stakeholders do not support the project or are opposed to it
2.4 Access to community assets	<p>+ Improved access for the target communities to community assets</p> <p>↑</p> <p>0 No significant change in access for the target communities to community assets</p> <p>↓</p> <p>- Reduction of access for the target communities to community assets</p>
2.5 Equity in accessing the community benefits of the project for the target communities	<p>+ Support the most disadvantaged groups of the target communities to access to the community benefits of the project</p> <p>↑</p> <p>0 Equitable access for the target communities to the community benefits of the project</p> <p>↓</p> <p>- Inequitable access for the target communities to the community benefits of the project</p>
2.6 Creation of employment in country	<p>+ Increase in number of jobs at national/regional or local levels</p> <p>↑</p> <p>0 No significant change in employment compared to the baseline; no jobs are created or lost</p> <p>↓</p> <p>-</p> <ul style="list-style-type: none"> • All jobs identified in the baseline are eliminated;

ELIGIBILITY CRITERIA	ASSESSMENT
	<ul style="list-style-type: none"> • Job losses
2.7 Impact on public health	<p>+ Improvement in public health</p> <p>↑</p> <p>0 No significant impact on public health</p> <p>↓</p> <p>- Adverse impact on public health</p>
2.8 Gender equity	<p>+ Promotion of gender equity and women empowerment</p> <p>↑</p> <p>0 No significant change in gender equity and women empowerment</p> <p>↓</p> <p>- Reduction in gender equity, discrimination against women</p>
Category 3. Technology Transfer	
3.1 Transfer of appropriate and best available technology	<p>+</p> <ul style="list-style-type: none"> • Best available technology in advanced industrial economies • Best available technology and technology well proven • Best available technology and technology can easily be maintained locally • Best available technology and technology appropriate for local economic and social conditions <p>↑</p> <p>0 Standard technology used</p> <p>↓</p> <p>-</p> <ul style="list-style-type: none"> • Inappropriate technology, not adapted to local needs and capacity • Equipment and skills for maintenance not available in Cambodia • Technology not proven, using Cambodia as a testing ground • Technology would not be allowed in investors' countries
3.2 Capacity building	<p>+</p> <ul style="list-style-type: none"> • Transfer of skills for use and maintenance of technology/equipment • Use of local companies to install and maintain equipment • Training of local technicians in areas of expertise not available in Cambodia <p>↑</p> <p>0 Training of local technicians in areas of expertise already available in Cambodia</p> <p>↓</p> <p>-</p> <ul style="list-style-type: none"> • No transfer of skills for use and maintenance of technology/equipment • No use of local companies to install and maintain equipment • Reliance on international experts to install/maintain equipment
Category 4. Economic Benefits	

ELIGIBILITY CRITERIA	ASSESSMENT
4.1 Use of local businesses and industries	<p>+</p> <ul style="list-style-type: none"> • Project working directly in local partnership • Use of local companies to manufacture equipment <p>↑</p> <p>0 Minimal use of local businesses and industries</p> <p>↓</p> <p>-</p> <ul style="list-style-type: none"> • No local companies employed during the designing, construction, implementation or maintenance stages • No local companies employed to produce equipment
4.2 Share of project budget spent in country	<p>+ Significant proportion of total budget spent in country on Cambodian economy</p> <p>↑</p> <p>0 Reasonable proportion of total budget spent in country on Cambodian economy</p> <p>↓</p> <p>- Minimal total budget spent in country on Cambodian economy</p>
4.3 Reduced dependence on fossil fuels (energy projects only)	<p>+</p> <ul style="list-style-type: none"> • Reduction of dependence on fossil fuels • Increased use of renewable and/or clean energy resources <p>↑</p> <p>0 No significant impact on dependence on fossil fuels</p> <p>↓</p> <p>- Increased dependence on fossil fuels</p>
4.4 Reduced dependence on imported energy (energy projects only)	<p>+ Reduction of dependence on imported energy</p> <p>↑</p> <p>0 No significant impact on dependence on imported energy</p> <p>↓</p> <p>- Increased dependence on imported energy</p>

Appendix V. Contact persons in government agencies

Designated National Authority: Cambodian Climate Change Office, Ministry of Environment

Mr. Sum Thy

Chief, Cambodian Climate Change Office
Ministry of Environment
#48, Samdech Preah Sihanouk, Tonle Bassac, Chamkarmon, Phnom Penh, Cambodia
Tel: 855-16-907764
Fax: 855-23-218370
E-mail: cceap@online.com.kh

Mr. Ouk Navann

Cambodian Climate Change Office
Ministry of Environment
#48, Samdech Preah Sihanouk, Tonle Bassac, Chamkarmon, Phnom Penh, Cambodia
Tel: 855-12-846599
Fax: 855-23-218370
E-mail: navannouk@yahoo.com

Ministry of Industry, Mines and Energy

Mr. Chan Socheat

Director, Technical Energy Department.
Ministry of Industry, Mines and Energy
#45, Preah Norodom Blvd., Phnom Penh, Cambodia
Tel: 855-23-990602
Fax: 855-23-428263
Mobile phone: 855-11-878575

Mr. Toch Sovanna

Deputy Director, Technical Energy Department
Ministry of Industry, Mines and Energy
#47, Preach Norodom Blvd, Phnom Penh, Cambodia
Tel: 855-23-427851
Fax: 855-23-990602
Mobile phone: 855-11-959699
E-mail: tsovanna@hotmail.com, mimedet@forum.org.kh

Ministry of Agriculture, Forestry and Fisheries

Mr. Ma Sok Tha

Chief, Reforestation Office, Forest Administration
Ministry of Agriculture Forestry and Fisheries
#40 Preah Norodom Blvd., Phnom Penh, Cambodia
Tel: 855-16-957020
Fax: 855-23-980008
E-mail: masoktha@online.com.kh

Mr. Ho Puthea

Chief, Land Management Office
Dept. of Agronomy and Agricultural Land Improvement

Ministry of Agriculture Forestry and Fisheries
Lt. 10, Monireath Blvd., Phnom Penh, Cambodia
Tel: 855-23-369966
H/p: 855-12-925039
E-mail: Hoputhea1@hotmail.com

Appendix VI. Relevant Web sites

Cambodian Climate Change Office (CCCO)
www.camclimate.org.kh

Cambodian Development Resource Institute (CDRI)
www.cdri.org.kh

Cambodia Renewable Energy and Electrification (RECambodia)
<http://www.recambodia.org/>

Cambodian Research Centre for Development (CRCD)
www.camdev.org

Council for the Development of Cambodia (CDC)
<http://www.cambodiainvestment.gov.kh/>
<http://www.cdc-crdb.gov.kh/>

Electricity Authority of Cambodia
www.eac.gov.kh

Ministry of Agriculture, Forestry and Fisheries
www.maff.gov.kh

Ministry of Commerce
www.moc.gov.kh

National Institute of Statistics
www.nis.gov.kh

Appendix VII. Glossary

Note: This glossary of commonly used CDM terms is adapted from the UNFCCC's Web site (<http://unfccc.int>).

afforestation. The direct, human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding, and/or the human-induced promotion of natural seed sources.

baseline. The baseline for a Clean Development Mechanism project activity is the scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases (GHGs) that would occur in the absence of the proposed project activity.

certified emission reduction (CER). A CER is equal to one metric tonne of carbon dioxide (CO₂) equivalent.

Clean Development Mechanism (CDM). The CDM provides for industrialized countries to implement project activities that reduce emissions in developing countries for CERs. The CERs generated by such project activities can assist industrialized countries to meet their emissions targets under the Kyoto Protocol. Such projects are to assist the developing country host parties in achieving sustainable development. The CDM is expected to generate investment in developing countries, especially from the private sector, and promote the transfer of environmentally friendly technologies.

Clean Development Mechanism Executive Board. A 10-member panel elected at COP-7 which supervises the CDM and has begun operation in advance of the Kyoto Protocol's entry into force.

crediting period. This is the period for which emission reductions from the baseline of a CDM project activity are verified and certified by designated operational entities for issuance of CER credits. Project participants may choose between two options for the length of crediting period: (1) fixed crediting period or (2) renewable crediting period.

crediting period, fixed. The start date and length of the crediting period is determined, for up to a maximum of ten years, with no possibility of renewal or extension once the proposed CDM project activity has been registered.

crediting period, renewable. A single crediting period may be set for up to a maximum of seven years. It may be renewed two times at most (maximum 21 years), provided that for each renewal the designated operational entity determines and informs the CDM Executive Board that the original project baseline is still valid or has been updated with the latest data (where applicable).

crediting period for afforestation and reforestation. The crediting period for a proposed afforestation or reforestation project activity can be either (a) up to a maximum of 20 years, which may be renewed at most two times (maximum 60 years), or (b) a maximum of 30 years.

debundling. The fragmentation of a large project activity into smaller parts. Note that a small-scale project activity that is part of a large project activity is not eligible to use the simplified modalities and procedures designed for small-scale CDM project activities.

designated operational entity (DOE). A qualified entity designated to validate proposed CDM project activities as well as verify and certify reductions in anthropogenic GHG emissions by sources.

leakage. The net change of anthropogenic emissions by sources of GHGs that occurs outside the project boundary, and which is measurable and attributable to the CDM project activity.

monitoring of a CDM project activity. Monitoring refers to the collection and archiving of all relevant data necessary for determining the baseline, and measuring anthropogenic emissions by sources of GHGs within the project boundary of CDM project activity and leakage, as applicable.

project activity. This is a measure, operation, or action aimed at reducing GHG emissions.

project boundary. This shall encompass all anthropogenic emissions by sources of GHGs under the control of the project participants that are significant and reasonably attributable to the CDM project activity.

project participants. These are the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) or private and/or public entities to whom CERs from the project activity in question would be issued.

reforestation. This is the direct, human-induced conversion of non-forested land to forested land through planting, seeding, and/or the human-induced promotion of natural seed sources on land that was forested but has been converted to non-forested land. Categorizing activities as reforestation is limited to those occurring on land that did not contain forest on December 31, 1989.

registration. This is the formal acceptance by the CDM Executive Board of a validated project activity as a CDM project activity. Registration is the prerequisite for the verification, certification, and issuance of CERs related to that project activity.

sink. The UNFCCC defines a “sink” as “any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere.” The development of policy on sinks has evolved to cover emissions and removals of GHGs resulting from land use, land-use change, and forestry (LULUCF).

small-scale project activities. Simplified modalities and procedures are applicable to the following small-scale CDM project activities: (1) renewable energy project activities with a maximum output capacity equivalent of up to 15 megawatts (or an appropriate equivalent); (2) energy-efficiency improvement project activities which reduce energy consumption (on the supply and/or demand side) by up to the equivalent of 15 gigawatt-hours per year; (3) other

project activities that both reduce anthropogenic emissions by sources and directly emit less than 15 kilotonnes of CO₂ equivalent (CO₂e) annually.

small-scale afforestation and reforestation project activities. These are expected to result in net anthropogenic GHG removals by sinks of less than eight kilotonnes of CO₂ per year and are developed or implemented by low-income communities and individuals. Simplified modalities and procedures are applicable to small-scale afforestation and reforestation project activities.

stakeholders. This refers to the public (individuals, groups, communities, etc.) that are affected or likely to be affected by the proposed CDM project activity or actions leading to the implementation of such an activity.

validation. The process of independent evaluation of a project activity by a designated operational entity, based on the project design document, against the requirements of the CDM.

verification. The periodic independent review and ex post determination by a designated operational entity of monitored reductions in anthropogenic emissions by sources of GHGs that have occurred as a result of a registered CDM project activity during the verification period. There is no prescribed length of the verification period; however, it shall not be longer than the crediting period.

REFERENCES

- Asian Development Bank (ADB). 2000a. *Cambodia country operational strategy—Enabling a socioeconomic renaissance*. Manila: ADB.
- . 2000b. *Cambodia: Enhancing governance for sustainable development*. Manila: ADB.
- . 2001. *Financial sector blueprint for 2001–2010*. Manila: ADB.
- Asian Development Bank and National Rural Electric Cooperative Association (NRECA). 2002. *Strategy for the management of provincial power supplies for Cambodia*. Manila: ADB.
- Burgeap and Kosan Engineering. 2001. *Market study and project pipeline development for solar photovoltaics*. Phnom Penh: World Bank.
- Cambodian Climate Change Office (CCCO). 2004. *Sustainable development criteria and assessment matrix*. Phnom Penh: CCCO.
- COGEN 3 Cambodia. 2004. *Cambodia—Final report*. Bangkok: COGEN 3.
- Council for the Development of Cambodia (CDC). 2004. *Laws and regulations on investment in the Kingdom of Cambodia*. Phnom Penh: CDC.
- Council for Social Development (CSD). 2002. *National poverty reduction strategy 2003–2005*. Phnom Penh: CSD.
- De Lopez, T. 2003. *Assessing Cambodia's potential for bio-energy*. Phnom Penh: Cambodian Research Centre for Development (CRCD).
- De Lopez, T., P. Tin, S. Sau, M. Jude, and K. Hing. 2003. *Survey of rice mills in Siem Reap, Banteay Meanchey and Battambang provinces*. Phnom Penh: Cambodian Research Centre for Development (CRCD).
- Electricité du Cambodge (EDC). 2001. *Electricité du Cambodge—Coverage and operations*. Phnom Penh: EDC.
- Hundley, C. 2003. *Renewable Electricity Action Plan (REAP)*. Phnom Penh: World Bank.
- Independent Forest Sector Review (IFSR). 2004. *The forest sector in Cambodia*. Phnom Penh: IFSR.
- International Development Association (IDA). 1997. *Findings and recommendations of the log monitoring and logging control project*. Phnom Penh: IDA.
- Kiernan, B. 1998. *The Pol Pot regime: Race, power, and genocide in Cambodia under the Khmer Rouge, 1975–79*. New Haven: Yale University Press.
- McKenney, B., and P. Tola. 2002. *Natural resources and rural livelihoods in Cambodia: A baseline assessment*. Phnom Penh: Cambodian Development Resource Institute (CDRI).
- Mekong Secretariat. 1971. *Inventory of promising tributary projects in the Lower Mekong Basin—Khmer Republic*. Bangkok: Mekong Secretariat.
- . 1973. *Inventory of promising tributary projects outside the Lower Mekong Basin—Khmer Republic*. Bangkok: Mekong Secretariat.
- Meritec. 2001. *Final report on RE strategy and program for the Rural Electrification Strategy and Implementation Program for the World Bank*. Phnom Penh: Meritec.
- Ministry of Agriculture, Forestry and Fisheries (MAFF). 2002. *Agricultural production*. Phnom Penh: MAFF.
- Ministry of Environment Cambodia (MOE). 1998. *Cambodia—National Environmental Action Plan 1998–2002*. Phnom Penh: MOE Cambodia.
- . 2001. *National greenhouse gas inventory for 1994*. Phnom Penh: MOE Cambodia.
- . 2003. Declaration of the establishment of the Cambodian Climate Change Office. Phnom Penh, Cambodia: MOE Cambodia.
- Ministry of the Environment (MOE), Japan, and Environment Centre Foundation, Climate Experts, Ltd. 2004. *CDM methodologies guidebook*.
- Ministry of the Environment (MOE), Japan, and Global Environment Centre Foundation and Pacific Consultants Co., Ltd. 2004. *CDM manual for project developers and policy makers*.

- Ministry of the Environment (MOE), Japan, and Institute for Global Environmental Strategies (IGES). March 2005. *CDM and JI in charts*, ver. 2.1.
- Ministry of Industry, Mines and Energy (MIME). 1997. *National energy consumption 1996*. Phnom Penh: MIME.
- Ministry of Planning (MOP). 1999. *Cambodia poverty assessment*. Phnom Penh: MOP.
- National Institute of Statistics (NIS). 1999. *General population census of Cambodia 1998*. Phnom Penh: Ministry of Planning (MOP).
- . 2004. *Cambodia statistical yearbook 2003*. Phnom Penh: MOP.
- New Energy and Industrial Technology Development Organization (NEDO). 2002. *Assistance project for the establishment of an energy master plan for the Kingdom of Cambodia*. Tokyo: NEDO.
- Pembina Institute. 2003. *A user's guide to the CDM (Clean Development Mechanism)*. Second edition.
- Royal Government of Cambodia (RGC). 2001. *Second Five-Year Socioeconomic Development Plan 2001–2005*. Phnom Penh: RGC.
- . 2004. Prime Ministerial Declaration No. 12 on the Establishment of Inter-Ministerial Task Force for Investment Climate Improvement and Trade Facilitation. Phnom Penh: RGC.
- Rural Electrification Action Plan (REAP). 2001. *Project brief—Cambodia Renewable Energy Promotion Project*. Phnom Penh: REAP.
- Truewind Solutions LLC. 2001. *Wind energy resource atlas of Southeast Asia*. Washington, DC: World Bank.
- United Nations Conference on Trade and Development (UNCTAD) and International Chamber of Commerce. 2003. *An investment guide to Cambodia—Opportunities and conditions*. New York: United Nations.
- United Nations Development Programme (UNDP). 2004. *Human development report 2004—Cultural liberty in today's diverse world*. Oxford: Oxford University Press.
- United Nations Development Programme (UNDP) and Food and Agriculture Organization (FAO). 1994. *Cambodia land cover atlas*. Phnom Penh: UNDP and FAO.
- United Nations Framework Convention on Climate Change (UNFCCC). 2001a. *Modalities and procedures for a clean development mechanism as defined in article 12 of the Kyoto Protocol*. Decision 17/CP.7. FCCC/CP/2001/13/Add.
- . 2001b. Report of the Conference of the Parties on its seventh session, held at Marrakesh from 29 October to 10 November 2001. Addendum part two: Action taken by the Conference of the Parties. Vol. II. FCCC/CP/2001/13/Add. 2.
- . 2002. Report of the Conference of the Parties on its eighth session, held at New Delhi from 23 October to 1 November 2002. Addendum part two: Action taken by the Conference of the Parties at its eighth session. FCCC/CP/2002/7/Add. 3.
- . 2003a. Report of the Conference of the Parties on its ninth session, held at Milan from 1 to 12 December 2003. Addendum part two: Action taken by the Conference of the Parties at its ninth session. FCCC/CP/2003/6/Add. 2.
- . 2003b. FCCC/CP/2003/6/Add.2. Decision 19/CP.9. Modalities and procedures for afforestation and reforestation project activities under the Clean Development Mechanism in the first commitment period of the Kyoto Protocol.
- . 2004. Report of the Conference of the Parties on its tenth session, held at Buenos Aires from 6 to 18 December 2004. Addendum part two: Action taken by the Conference of the Parties at its tenth session. FCCC/CP/2004/10/Add. 2.
- . 2005a. Approved baseline and monitoring methodologies.
<http://cdm.unfccc.int/methodologies/PAMethodologies/approved.html> (June 30, 2005).
- . 2005b. Approved small-scale methodologies.
<http://cdm.unfccc.int/methodologies/SSCMethodologies/approved> (June 30, 2005).
- UNFCCC CDM Executive Board (EB). 2004a. Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories. Appendix B of the simplified modalities and procedures for small-scale CDM project activities. EB 7, report, annex 6 (October 24, 2004).
- . 2004b. Tool for the demonstration and assessment of additionality. EB 16, report, annex 1 (October 22, 2004).
- . 2004c. Clarification on elements of a written approval. EB 16, report, annex 6 (October 22, 2004).

- . 2005a. Executive Board of the Clean Development Mechanism eighteenth meeting, report (February 25, 2005).
- . 2005b. Guidelines for completing the project design document (CDM-PDD), the proposed new methodology: baseline (CDM-NMB) and the proposed new methodology: monitoring (CDM-NMM). ver. 4.
- Williamson, A., B. McIntosh, T. De Lopez, and P. Tin. 2004. *Sustainable energy in Cambodia: Status and assessment of the potential for Clean Development Mechanism projects*. Phnom Penh: Cambodian Research Centre for Development.
- World Bank. 1996. *Cambodia forest policy assessment*. Washington, DC: World Bank.
- . 1999. *Cambodia: A vision for forestry sector development*. Washington, DC: World Bank.
- . 2000. *Cambodia country assistance strategy—Building the foundations for sustainable development and poverty reduction*. Washington, DC: World Bank.
- . 2002. *Rural Electrification Action Plan proceedings*. Phnom Penh: World Bank.
- . 2004. *Cambodia—Seizing the global opportunity: Investment climate assessment and reform strategy*. Phnom Penh: World Bank.
- World Bank and Hydro-Electric Commission Enterprises Corporation (HECEC). 1998. *Kingdom of Cambodia—Power Transmission Master Plan and Rural Electrification Strategy*. Phnom Penh: World Bank.

CDM Country Guide for CAMBODIA

A series of manuals for CDM project development in Asia

The Kyoto Protocol introduced the Clean Development Mechanism (CDM) to assist Annex I countries from the developed world to meet their committed targets to reduce greenhouse gas emissions, while contributing to the development of climate-friendly projects in non-Annex I countries in the developing world.

The CDM Country Guide for Cambodia contains essential information to develop CDM projects in Cambodia, including information on potential CDM project types, project approval procedures, legal issues, financing, and government incentives. In addition, the guide includes many appendices with useful information, such as a contact list, requirements by the host country designated national authority (DNA) and CDM project pipelines. The guidebook aims at facilitating CDM project developments in developing countries in Asia by providing necessary information to both project developers and potential investors.

This is part of a series of the guidebooks prepared by the IGES Integrated Capacity Strengthening for the Clean Development Mechanism/Joint Implementation (ICS-CDM/JI) under Ministry of the Environment, Japan's CDM/JI promotion initiatives.



9784887880184

ISBN4-88788-018-9