

Final as December 20, 2006



MAFF

**KINGDOM OF CAMBODIA
NATION RELIGION KING**



UNCCD

**THIRD NATIONAL REPORT TO THE
CONVENTION ON
COMBAT DESERTIFICATION**



**Ministry of Agriculture, Forestry and Fisheries
Phnom Penh, Cambodia**

List of abbreviations

Sq Km	Square Kilometer
ADB	Asian Development Bank
ASEAN	Association of Southeast-East Asian Nations
AusAID	Australian Aid Agency
AQIP	Agriculture Quality Improvement Project
CARE	Cooperation Assistance Relief Everywhere
CEDAC	Centre d'étude et de Développement Agricole Cambodgien
CBD	Convention on Biological Diversity
CCD	Convention to Combat Desertification
C&I	Criteria and Indicator
CCPFH	Cambodian Code of Practice for Forest Harvesting
CITES	Convention on International Trade in Endangered Species of Wild Fauna & Flora
CRIC	Committee for the Review of the Implementation of the Convention
CDM	Clean Development Mechanism
COP	Conference of the Parties
DANIDA	Danish International Development Agency
DFW	Department of Forestry and Wildlife
EC	European Community
ESCAP	Economic and Social Commission for Asia and the Pacific
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
FAO	Food and Agriculture Organization of the United Nations
FA	Forestry Administration
FFS	Farmer Field School
FCCC	Framework Convention on Climate Change
FCMPM	Forest Concession Management Planning Manual
GDP	Gross Domestic Product
GEF	Global Environment Facility
GMS	Great Mekong Subregion
GTZ	Gesellschaft für Zusammenarbeit
GSFM	Guidelines for Sustainable Forest Management
IFAD	International Fund for Agriculture Development
IO	International Organization
IPM	Integrated Pest Management
JICA	Japanese International Cooperation Agency
LAMDP	Land Administration, Management, and Distribution Program
Lao PDR	Lao People's Democratic Republic
MAFF	Ministry of Agriculture, Forestry and Fisheries
MOC	Ministry of Commerce
MOE	Ministry of Environment
MDG	Millennium Development Goal
MDLF	Multi-Donor Livelihoods Facility
MEF	Ministry of Economic and Finance
MLMUPC	Ministry of Land Management, Urban Planning and Construction
MRC	Mekong River Commission
MRD	Ministry of Rural Development
MOC	Ministry of Commerce
MOWRAM	Ministry of Water Resources and Meteorology
NAP	National Action Plan/Program

NAPA	National Adaptation Program of Action
NCSA	National Capacity Self Assessment
NGO	Non Governmental Organization
NPRD	National Program to Rehabilitate and Develop
NRM	Natural Resources Management
NTFP	Non Timber Forest Product
NSDP	National Strategic Development Plan
NFP	National Forest Program
PTF	Promote Tropical Forests
RAP	Regional Action Program
RGC	Royal Government of Cambodia
PLUP	Participatory Land Use Planning
SEDP	Socio-Economic Development Plan
SEILA	Social Economic Improvement Local Agency
SRAP	Sub-Regional Action Program
SFM	Sustainable Forest Management
SFMP	Strategic Forest Management Plan
TWG F&E	Technical Working Group on Forest and Environment
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Education, Social Culture Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNITAR	United Nations Institute for Training and Research
UNIDO	United Nations Industry Development Organization
WB	World Bank
WHO	World Health Organization
WWF	World Wildlife Fund

Executive summary

Cambodia became a signatory to the UNCCD on 15th October 1994, and ratified the Convention on 18th August 1997. The Royal Government of Cambodia preparing its National Action Plan (NAP) on Combat Desertification and would be finally in the end of December 2006. The Royal Government of Cambodia submitted its second national report on the implementation of the UNCCD to the COP5 in April 2002. This third National Report is prepared in response to the Decision 9/COP.7 on the implementation of the UNCCD.

In Cambodia, the major root causes of land degradation are come from soil erosion, deforestation, seasonal drought caused by inappropriate land use, poor agricultural activities and gemstone mining activity in the area of border between Cambodia and Thailand. The high erosion has taken place at the North-East mountain ranges and high plateau along main tributaries of the Mekong River, and at the North-West high plateau, where sediment is flows into the Tonle Sap Lake. The recent changes in climate events, particularly the increasing frequency of dry events notably by El Nino, have increased new emerging climate pattern called seasonally aridity. The dry can spell long times as usual in some areas in Cambodia.

The activities to Combat Desertification and drought in Cambodia are related to the National Priority Programs. They cover issues concerning to forestry, water resources, biodiversity, natural disasters, climate change, flood and drought prevention, environmental public awareness. A collaboration group for the UNCCD implementation was officially established.

The preparation process began with review of the second national report, all relevant documents and information from line ministries, sectoral institutions and agencies were collected. Organized the group meeting of expert prepared the third national report on implementation in the context of UNCCD and organize a consultative workshop for validation of the national report, was led by the National Focal Point, and supported by GEF, UNCCD, UNDP and relevance stakeholder. Preparation activities included data collection; information formulation was conducted. The stakeholder consultative workshop has been conducted for validation the third national report on 12 December 2005. There about 60 participants from relevance stakeholders attending the workshop. This report is prepared base on the guidelines and methodology provided in the Help Guide (ICC/CRIC (5) INF (3)) prepared by UNCCD secretariat. Some modifications are necessary due to the national circumstances of the country.

The report was composed of an Executive Summary and 8 Chapters. Chapter 1 gives and introduction to the report, which provides the background, methodology and the structure of the report; Chapter 2 provides the general geographic condition of Cambodia and country profile; Chapter 3 provides the institutional framework and stakeholders; Chapter 4 provides the status of land use and its changes; Chapter 5 describes the strategies and priorities established within the framework of sustainable development plans/or policies of Cambodia including NAP, MDG; Chapter 6 describes about the Measures taken of Cambodia to implement the UNCCD obligations and major achievement; Chapter 7 would provides the Capacity development needs of Cambodia in order to implement the obligations of the UNCCD; and Chapter 8 will describes the way forward (Follow up actions) for Cambodia in implementation of her obligations for UNCCD in the future.

There were three factors are commonly cited as cause of desertification: overgrazing, inappropriate agricultural practices and overuse of woody biomass. Such factors are not confined to dry areas and can lead to equally severe degradation in humid areas. Land degradation following mismanagement of the natural resource can occur anywhere, irrespective of the prevailing climatic conditions. For this reason it is believed that the emphasis placed on desertification programs within the Asia and Pacific regions is misdirected. What is needed is a commitment to holistic approach to land degradation wherever it might occur.

The major causes of land degradation in the country are deforestation by the war, unsustainable agricultural and water management practices, land use changes for development, and industrialization. The major process of land degradation is soil erosion due to water and wind erosion. The other processes include problems of water logging, salinity-alkalinity. The process of desertification is impacting every aspect - loss of agricultural productivity, loss of natural resources (forests and vegetative cover, biodiversity, soil changes), socio-economic conditions (economic losses, problems of sustenance, decline in quality of life), etc. Desertification is land degradation in the drylands due to a number of factors including climatic variations and human activities. Man-made causes include expansion of agriculture and unsustainable agricultural practices such as over cultivation, nutrient inputs, poor irrigation practices, deforestation and overgrazing.

The Government's environmental protection and natural resources management efforts are guided by four principles. The first principle is the recognition of the link between poverty alleviation and the environment. To safeguard the environment, the Government will increase the economic opportunities to the rural poor. Natural resource degradation is in part due to exploitation by the rural poor, who are seeking to satisfy their basic needs. Reducing rural poverty is therefore essential for achieving sustainable management of the environment.

The Royal Government's Rectangle Strategy launched in July 16, 2004 recognized that the Government would enhance agriculture sector in Rectangle I such as Improve agricultural productivity and diversification, Land reform and de-mining, Fisheries reform, and Forestry reform which focusing on sustainable forest management policy, protected area system, and community forestry (Rectangle Strategy for Growth, Employment, Equity and Efficiency).

Based on the national goals of environmental protection, bio-diversity conservation, poverty reduction, socio-economic development, and good governance, the Statement of the Royal Government on National Forest Sector Policy has been developed and adopted in 2002. The main concept of the National Forest Sector Policy (NFSP) shows that Cambodia has been seriously concerned about the conservation and sustainable management of the country's forest resources. The NFSP was developed consistent to the Rectangular Strategy of the RGC, Forestry Law, relevant regulations, and the existing National Forestry Program (NFP).

To ensure sustainable forest management, it is important that the forest resources, especially the permanent forest estate, are secured and protected from encroachment and that they are managed in accordance with best management practices involving the participation of local communities, who are dependent on the forest for their daily subsistence. Reforestations have been developed under categories of (1) Economy Land Concession (2) Forest land granted for tree planting (3) Community forestry plantation (4) Government own plantations including military activities (5) Individual or private land plantations, and (6) National Arbor-day celebrations with people participation.

Environment and conservation are accorded high priority in Royal Government of Cambodia's efforts for sustainable development to benefit social and economic development of concerned

communities. A draft law on Protection Areas is before the National Assembly. This law provides for procedures, guidelines, and regulatory tools for the administration and management of protected area, protection of rights and traditions of ethnic minorities and creation of protected area communities to seek their participation in the sustainable management and use of natural resources, and use National Biodiversity Steering Committee has been set up.

To adequately respond to the urgent needs of climate change, in particular droughts and floods, a draft National Adaptation Program of Action to Climate Change has been prepared containing priority actions needed to adapt to climate change in regard to agriculture, water resource management, coastal zone management and human health.

The National Poverty Reduction Strategy (2003-2005) recognizes the three aspects of land management vision including (1) land will be administered in a way which makes property rights legally clear and secure, (2) concessions for social purposes will be made to distribute vacant State's land to socially needy households, and (3) land will be managed in an environmentally sustainable way, which provides the poor with the opportunities for secure access to natural resources (especially land), to secure housing, to credit, and to employment, and for investment.

The developments in decentralization and deconcentration are an opportunity to re-define the roles of the national, provincial, district and commune level authorities that devolves power to decide on land use planning and NREM issues at the commune level with support from the higher levels to implement the community development plans. The Government has also stressed the adoption of a consultative process to determine the land distribution for the poor and prevent illegal land acquisition and land concentration.

The relative of human technical competence by sectors working under CCD are still very limited. According to the result from conducted surveys for human technical competence working under UNCCD in order to fulfill the obligation of the convention, the severely lacking of human technical competence working on CCD obligations within the governmental agencies, international organizations, local organizations, but within the academic research and development there were the percentage of responses of human competence under CCD are most the same percentage between severely lacking, lacking, sufficiency and more than sufficiency.

With its goal, activities has mentioned above, activities have focused on (1) research and development, (2) capacity building and (3) networking and information activities, capacity-building and human resources development components achieved the effectiveness of the professionally trained staff able to undertake and implement the activities of Sustainable Forest Management Conservation and Sustainable Land Management effectively in respond to the implementation the obligations of the Convention to Combat Desertification.

TABLE CONTENTS

List of abbreviations.....	2
Executive Summary.....	4
Contents.....	7
Chapter 1 Introduction.....	10
1.1 Background.....	11
1.2 Methodology.....	11
1.3 Structure of the report.....	12
Chapter 2 General geographic condition.....	12
2.1 Overview.....	12
2.2 Rice ecosystem of Cambodia.....	12
2.3 Wetland.....	13
2.4 River and Lakes.....	13
2.5 Soil Erosion Control/Sedimentation Reductions.....	13
2.5.1 Soil erosion.....	13
2.5.2 Wind erosion.....	14
2.5.3 Water erosion.....	14
2.5.4 Sedimentation reduction.....	15
2.6 Root cause of land degradation.....	15
2.7 Natural disasters.....	16
2.7.1 Flood.....	16
2.7.2 Drought.....	17
Chapter 3 Institutional framework and stakeholders.....	18
3.1 The National Institutional arrangement.....	18
3.2 Combat Land Degradation, Natural Resources, Mitigation and Livelihoods.....	19
3.2.1 Rural Livelihoods Improvement.....	19
3.2.2 National Capacity Self Assessment.....	20
Chapter 4 Status of land use and its changes.....	21
4.1 Present status of land in Cambodia.....	21
4.2 Land use and its change.....	22
4.3 Land use and fertilizer use.....	23
Chapter 5 The strategies and priorities established within the framework of sustainable development plans/or policies.....	24
5.1 National policy and legal framework.....	24
5.2 Legal aspects.....	25
5.3 Ratification of international conventions.....	27
5.4 Strategies and priorities in forestry sector.....	28
5.4.1 An Over View of Cambodia's Forest Cover.....	29
5.4.2 National Forest Policy.....	33
5.4.3 National Legal Framework.....	33
5.4.4 Rectangular Strategies.....	34
5.4.5 National Forest Programs.....	35

5.4.6 Community Forestry.....	37
5.4.7 Forest Gene Conservation.....	37
5.4.8 Reforestation.....	38
5.4.9 Production Forest Management.....	39
5.4.10 Forest Law Enforcement.....	40
5.5 Natural Resources Management	41
5.5.1 Conservation.....	41
5.5.2 Natural Resources and Environment Management.....	43
5.6 National development plan on land use.....	45
5.6.1 Land Management and Land Law.....	46
5.6.2 Land Policy.....	47
5.6.3 Land Law and Related Rules and Regulation.....	48
5.6.4 Land Use Planning and NREM.....	48
5.7 Soil fertility management and conservation.....	49
5.8 Strengthen linkage with other soil fertility and land management programs.....	50
5.9 Policy and rural development.....	51
5.10 The involvement of the international communities.....	53
5.10.1 Support from other international development partners for forestry.....	53
5.10.2 DANIDA supported interventions: Mainstreaming NREM through Seila Program.....	53
5.10.3 Environmental Management in the Coastal Zone.....	54
5.10.4 National Community Forestry Program, Concern Worldwide in Cambodia.....	54
5.10.5 Integrated Pest Management (IPM).....	55
5.11. The National Capacity Development Project (NCDP).....	55
5.12. Other Donor Supported Projects.....	55
Chapter 6 Measures taken to implement the UNCCD and achievement	58
6.1 Research and development.....	58
6.2 Integrated Pest Management.....	59
6.3 Integrated Nutrient Management.....	59
6.4 Land management trials.....	59
6.5 Land mine.....	60
6.6 On-farm fertilizer and manure trials.....	61
6.7 On-station fertilizer and manure field trials.....	61
6.8 On farm compost making.....	62
6.9 Compost house.....	62
6.10 Achievements, recommendation and lessons learned by the Sustainable Soil Fertility and Land Management.....	63
6.11 Farming system improvement.....	64
6.12 Develop and improve fertilizer guidelines.....	65
Chapter 7 Capacity development needs for implementation.....	66
the obligation of UNCCD	
7.1 Human technical competence.....	66
7.2 Public awareness among stakeholders.....	68
7.2.1. Public Awareness for forestry.....	68
7.2.2 Institutional Strengthening and Capacity Building for forestry.....	68

7.2.3 Technical Working Group on Forest and Environment (TWG-F&E).....	70
7.3 Organize and facilitate workshops, field days.....	70
7.4 Transfer Technology to Farmers.....	72
7.5 Develop extension packages.....	73
7.6 Initiate a formal training program.....	73
7.7 On-the-job training for Technical Office counterparts.....	73
7.8 Lessons Learned.....	74
7.9 Conclusions.....	74
Chapter 8 Way ahead (Follow up actions).....	78
Reference.....	77
Annex 1.....	79
Annex 2.....	82
Annex 3.....	85
Annex 4.....	88

CHAPTER 1 Introduction

Cambodia is a tropical country located on the peninsula of mainland Southeast Asia with a land area of about 181,035sq km. It is adjacent to the gulf of Thailand and has a coastline of approximately 435 km. Its land border of 2,438 km runs along Thailand to the west, Vietnam to the east and Laos PDR to the north. Cambodia is divided into 24 provinces, 185 districts, 1,621 communes and 13,707 villages.

The seasonal rainfall pattern of Cambodia, as with other parts of Southeast Asia, is dominated by the influence of the monsoon climatic regime. Southwest monsoon winds from mid-April or May through October bring moist air masses from the Gulf of Thailand and heavy rains. The continental monsoon winds from the northeastern bring dry conditions between November and March.

The relative humidity in Cambodia fluctuates between 60 to 80% through the year. The least humid days are experienced during the lead-up to the break of the wet season. Although the maximum daily humidity recordings remain reasonably constant, the difference between these and minimum humidity levels decreases considerably when rainfall is at its peak in September and October.

Cambodia is divided into three sides by mountains with the large central plain containing Tonle Sap Lake and river complex in the center. To the west and southwest are the cardamom and Elephant Mountains, the Dang Rek Mountain lie along the Thai border in the north, and lower reaches of the central highlands of Vietnam are found in the east. The central plains are extremely flat, with an elevation difference of 5-10 m between the southeastern portion of the country and the upper reaches of the lake in northeast, a distance of more than 300 Km. The plains are a result of long term deposition originating from the mountains with in Cambodia and from sediments carried into the plain by Mekong River.

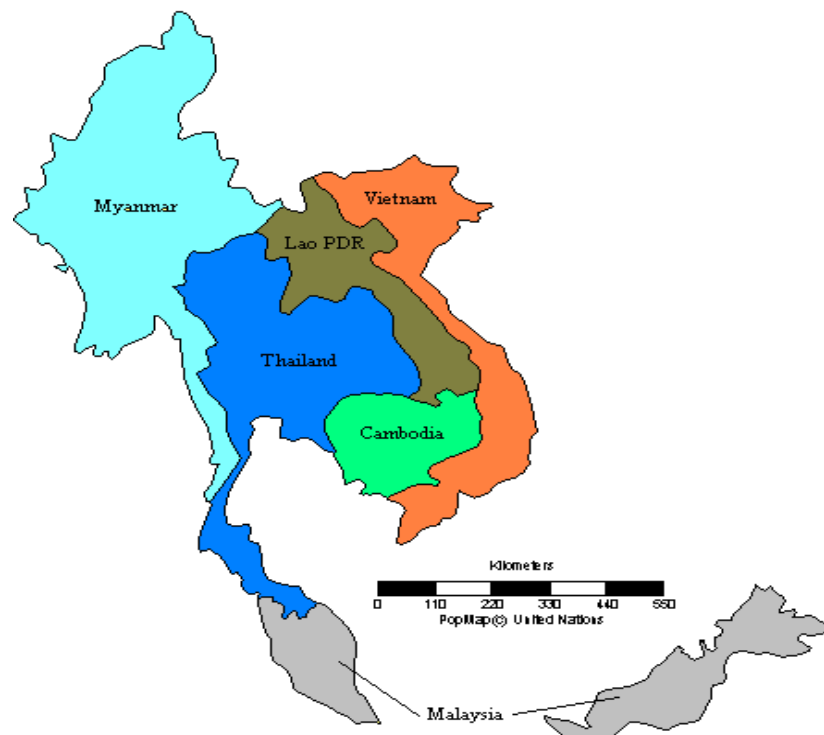


Figure 1: Geographical location of Cambodia in South-East Asia

The agricultural sub-sectors contribute to Cambodia's GDP has fallen significantly from 45.6% in 1993 to just about 30% in 2005 (estimated). The main crop production is rice which accounts for 90% of the cropped area and one-third of the total value of agricultural production. It is also the major source of food, which accounts for almost three-quarters of calorie intake.

Agricultural production is strongly connected to the annual cycle of flooding where 4 million hectares of the country becomes wetlands during rainy season. Some Cambodian farmers rely on floodwater for rice production and fishing, as well as for a range of other products derived from flooded forests and wetland areas. However, despite being ranked third in Southeast Asia for its abundance in water, Cambodia suffers from seasonal water shortages and constraints on domestic and agricultural water supply.

However, this comparative advantage does not necessarily translate into exports or competitiveness when quality, consistency of supply and transparency of transactions are weak or lacking. Prices for both agricultural inputs and outputs are market determined. The growth for the agricultural sector was sluggish averaging around 2.0% p.a. from 1997-2003. Agriculture rebounded in 2003, rising by 9.6% following a good harvest, after a contraction of 3.2% in 2002 due to serious droughts and floods. The data are expected to show a 2% decline in 2004 due to drought. A low agricultural growth rate is of particular concern as 82% of the population live in rural areas, more than 75% of economically active population are engaged in agriculture and the majority of the poor live in the rural areas (*UNDP/IFAD document of Rural Livelihood Improvement project, 2006*).

1.1 Background

The Kingdom of Cambodia became a signatory to the UNCCD on 15th October 1994, and ratified the Convention on 18th August 1997. In the context of Cambodia desertification refers to land degradation caused by agricultural development, deforestation and seasonal drought.

In accordance to the Article 26 of the UNCCD and the decisions of the Conference of the Parties (COP), particularly decision 11/COP.1, each Party member to the Convention is required to report, through the UNCCD secretariat on measures undertaken to implement the UNCCD obligations.

The Royal Government of Cambodia preparing its National Action Plan (NAP) on Combat Desertification and would be finally in the mid of year 2007. The Royal Government of Cambodia submitted its second national report on the implementation of the UNCCD to the COP5 in April 2002. This third National Report is prepared in response to the Decision 9/COP.7 on the implementation of the UNCCD.

1.2 Methodology

This report is prepared base on the guidelines and methodology provided in the Help Guide (ICC/CRIC (5) INF (3)) prepared by UNCCD secretariat. Some modifications are necessary due to the national circumstances of the country.

The preparation process began with review of the second national report, all relevant documents and information from line ministries, sectoral institutions and agencies were collected. Organized the group meeting of expert prepared the third national report on implementation in the context of UNCCD and organize a consultative workshop for validation of the national report. There were about 60 participations from relevant stakeholders attended the workshop.

1.3 Structure of report

This report is composed of an Executive Summary and 8 Chapters. Chapter 1 gives an introduction to the report, which provides the background, methodology and the structure of the report; Chapter 2 provides the general geographic condition of Cambodia and country profile; Chapter 3 provides the institutional framework and stakeholders; Chapter 4 provides the status of land use and its changes; Chapter 5 describes the strategies and priorities established within the framework of sustainable development plans/or policies of Cambodia including NAP, MDG; Chapter 6 describes about the Measures taken of Cambodia to implement the UNCCD obligations and major achievement; Chapter 7 would provide the Capacity development needs of Cambodia in order to implement the obligations of the UNCCD; and Chapter 8 will describe the way forward (Follow up actions) for Cambodia in implementation of her obligations for UNCCD in the future.

CHAPTER 2 General geographic conditions

2.1 Overview

The major bioclimatic regions described in the 1997 Biodiversity Prospectus are: coastal and mountainous areas of the Southwest; central plains which include the Great lake of the Mekong and the surrounding areas, and northern and North- Eastern areas.

The temperature of the hottest months is high (with 41°C maximum on April) and the temperature of the coldest month average 25°C in the lowlands and 20°C in the uplands. Rainfall varies between 1,500-2,000 mm in the lowlands and higher than 3,000 mm in the uplands. The dry season is four months long, December to March. Most of the land is still covered by forests.

Cambodia possesses abundant land (including water) resources essential for agricultural development. Sediment from monsoon overflow deposited in the cultivation areas around the Tonle Sap and other plains along the Mekong River and other rivers supplies nutrients essential for plant growth and makes these areas perfectly suitable for the cultivation of rice as well as other crops.

2.2 Rice ecosystems of Cambodia

The natural ecosystems of Cambodia consist of tropical forests, rivers, lakes, and coastal areas. Man has influenced these natural ecosystems over thousands of years. Forest has been cleared to create rice growing land, thereby giving rise to rice ecosystems.

Rice ecosystems in Cambodia are diversified and can be classified into four systems as: Rainfed lowland rice, Deepwater Rice, Rainfed Upland Rice (Wet season crop) and Dry Season Rice. Local varieties are mostly cultivated in wet season crop and IR varieties are cultivated in dry season crop.

Rice is Cambodia's major agricultural crop and traditional source of carbohydrate. Of the total rice crop area in the country, 86% is rain-fed lowland rice, 8% is dry season rice, 4% is floating rice and 2% is upland rice. Rain-fed low land rice represents the most abundant rice crop and is characterized by flat banded rice field that are almost entirely dependent on rainfall and surface runoff for water supply. Dry season rice is limited to areas close to major rivers and floodplains. Shifting cultivation, also known as swidden agriculture, is common practice of clearing and utilizing a plot of land for 1-5 years and then clearing another plot of land and is associated with burning and thus often termed as "slash and burn". Home garden commonly occurs around houses

and often have a variety of uses including food, fuel, construction materials, herbal medicine, ornamentation and shade. Commercial field crop have recently increased.

Total rice production in the country has increased from about 2.1 million metric tons in 1995 to 5,986,179 tons metric tons in 2005. However, productivity per hectare remains low when compared to other countries like Thailand and Vietnam. Cambodia's estimated rice yield is at 2.479 tons/ha in 2005.

2.3 Wetland

The majority of Cambodia's freshwater wetlands are found around the Tonle Sap Lake and along the Mekong River and its tributaries. They comprise the Tonle Sap Lake, other permanent lakes and swamps and annually inundated flood plains. The total wetlands area increases nearly ten-fold from about 0.5 million ha in the dry season to 5 million ha in the wet season (July-September) in an average year. The Tonle Sap Lake alone increases four-fold in area from 250,000 ha in the dry season to about 1,000,000 ha in an average year in, and to about 1,350,000 ha in a wet (heavy rained) year. The surface of the lake was reported to have from 2,700 km² during the dry season to approximately of 16,000 km² at the maximum level of flooding and the water level depths vary between 1 m in the dry season to 9m in the wet season (Guiscafre, 1963). The total wetland area in an average year represents nearly 28% of the total area of the country (181,035 km²) and in a wet year it could be as high as 35%.

2.4 River and lakes

World wide, freshwater habitats are very limited in area, with inland lakes covering about 1.8% of the Earth's surface and running water in rivers and stream covering about 0.3%.

However, the Mekong River -Tonle Sap system dominates the hydrology of Cambodia. The Mekong River rises in the Tanghla Shan Mountains in the Tibetan Plateau and flows through Myanmar, Laos, Thailand, Cambodia and Vietnam. A further 10-20% from the Sesan, Srepok and Sekong in North-Eastern of Cambodia and the remaining 10% from the rivers that drain Cambodia into the Tonle sap lake (Pantulu, 1986). Eighty six percent of the land of Cambodia lies within the catchment of the Mekong River.

Environmentally, economically, and even culturally, Cambodia is dominated by the Tonle Sap, the largest freshwater lake in Southeast Asia, and associated Mekong lowlands. An unusual phenomenon, whereby in the rainy season the Mekong River backs up and actually flows into the Tonle Sap, causes the lake to swell up to 4 times its size. As a consequence of this process, the Tonle Sap and surrounding lands are unusually productive, both for agriculture and fisheries. It is the wealth generated from this productivity that was a major factor leading to the emergence of the Angkorian Empire, which dominated Southeast Asia from the 9th to the 14th centuries AD.

2.5 Soil Erosion and Sedimentation Reduction

2.5.1 Soil Erosion

In the soil conservation arena the terms of soil degradation and land degradation are sometimes incorrectly used interchangeably, with soil erosion regards as synonymous to both. However there

is more to soil degradation than just soil erosion, and land represents a broader concept than simply soil. As with its use in the context of land evaluation (FAO, 1976a), the term of land refers to all natural resources which contribute to agriculture production, including livestock production and forestry. Land thus covers climate, landforms, water resources, soils and vegetation (including both grassland and forests).

Whereas combating soil degradation and/or combating desertification cannot be addressed isolation of other natural resources, as degradation of one can be expected to have an adverse impact on the agricultural productive capacity of the others.

Three factors are commonly cited as cause of desertification: overgrazing, inappropriate agricultural practices and overuse of woody biomass. Such factors are not confined to dry areas and can lead to equally severe degradation in humid areas. Land degradation following mismanagement of the natural resource can occur anywhere, irrespective of the prevailing climatic conditions. For this reason it is believed that the emphasis placed on desertification programs within the Asia and Pacific regions is misdirected. What is needed is a commitment to holistic approach to land degradation wherever it might occur.

In Cambodia soil erosion also being threaten in some regions throughout the country, in particular to terrain and steep slope areas where the logging activities been taken heavily, as an example in Northeaster (Mondulkiri, Kratie, Steoung Treng and Ratanakiri province) and Southwestern (Kompot and Kompaong Speu) regions of the country.

2.5.2 Wind Erosion

The risk of win erosion is severe in the arid and semi-arid areas of Asia and Australia. It includes both the removal and deposition of soil particles by wind action and the abrasive effects of moving particles as they are transported. It occurs when soil is left bare of vegetation as a result of cultivation, and/or overgrazing following overstocking. Not only can the win remove topsoil from good farmland; it can result in additional damage by burying land, buildings, machinery and fences with unwanted soil. There is no data recorded in regard with deposition of soil particles in the valleys and/or plain in Cambodia; however, there is estimated that in Pakistan some 42% of the arable land are effected by wind erosion, and in India the figure is 6%, although the total area affected of 11 Million Ha, is the same as for Pakistan (FAO, 1994a). In China there are reports that windblown sand has affected some 2.65 Million Ha of cultivated land (ESCAP, 1995).

2.5.3 Water Erosion

Water erosion is the most widespread form of degradation within the Asia and Pacific regions and occurs widely in all agro-climatic zones. This category includes processes such as splash erosion, sheet erosion, rill and gully erosion and mass movement (Douglas, 1994).

- Splash erosion: commonly initiates water erosion and occurs when raindrops fall onto the bare soil surface. The impact of raindrops breakups the surface soil aggregates and splashes particles into the air. On sloping land relatively more of these will fall down-slope resulting in a net downhill soil movement. Some of the soil particles may fall into the voids between the surface aggregates and thereby reducing the amount of rainwater than can infiltrate into the soil and increasing runoff.
- Water running over the soil surface has the power to pickup some of the particles released by splash erosion. In ca also detach particles from the soil surface. This may result in **sheet erosion** where soil particles are removed from the whole soil surface on a fairly uniform basis. Where runoff becomes concentrated into channels **rill and gully erosion**

may result. Rills are small rivulets of such a size that they can be worked over with farm machinery. Gullies are much deeper (often being several meters depth and wide) and form a physical impediment to the movement, across the slope, of farm machinery.

- On sloping land when soil is saturated, the weight of the soil may exceed the force holding the soil in place. Under such circumstances **mass movement** in the form of land slides or mudflows may occur. On steep slopes this mass movement may be very rapid, involving the movement of large volumes of soil, usually on an isolated event and localized basis. In geologically recent and unstable mountain areas, such as the Himalayas. In term of Cambodia the areas that prone to mass movement located along the steep slop of Mekong, Tonle Sap and Prasac Rivers, these landslides are belong to the natural phenomenon weather and strong water flow.

2.5.4 Sedimentation Reduction

Erosion is part of natural and results in sedimentation, which can have positive effects, such as fertilizing the soils, and negative effects such as making a lake shallower.

Only one study of the sedimentology of the Tonle Sap Lake area has been made in 1962 – 1963 (Carbonnel and Guiscafré, 1963). They drilled 19 holes in the dry season Lake bottom and concluded that the lake was formed about 5,000 years ago by a transgression of the sea (sea level rise) and had been sediment at a rate of 0.3 mm/year since then.

2.6 Root cause of land degradation

In Cambodia, the major root causes of land degradation are soil erosion, deforestation, seasonal drought caused by inappropriate land use, poor agricultural activities and gemstone mining activity in the area of border between Cambodia and Thailand. The high erosion has taken place at the North-East mountain ranges and high plateau along main tributaries of the Mekong River, and at the North-West high plateau, where sediment is flows into the Tonle Sap Lake.

The soil erosion in the North-West highland, where the illegal deforestation and gemstone mining, illegal mining activities have been continued are the major root causes of sedimentation in the Tonle Sap Basin and siltation in the rivers, especially in the Tonle Sap Great Lake. The direct impact is on the overall the last two decades. In the 1960s sedimentation rate of 2cm per year were recorded (FAO, 1991). Increased sedimentation rates of the lake are attributed to the number of factors including: deforestation in the upper reaches of the Tonle Sap watershed and the flooded forest, gemstone mining in Pail in City, and increase in Mekong silt load due to deforestation in other parts of the Mekong Basin. These distribute the flows to the Mekong Delta in Southern part of Vietnam and discharge into the South China Sea.

Besides the sedimentation of the Lake, the soil erosion in the mountain ranges also causes water in some estuary of coastal line becoming a shallow from year to year. However, the sedimentation survey in the rivers of the coastal has never been conducted yet.

In discussing land degradation, as a general phenomenon, the NAP identified its impacts as covering loss of land productivity, loss of ground cover, loss of biodiversity, loss of livelihoods, and exacerbating poverty.

Looking more specifically at soil degradation, the NAP distinguishes between natural degradation, caused by leaching of bases, resulting in increased acidification and a reduction in productivity, and human-induced soil degradation. This latter phenomenon results in soil erosion, rapid

depletion of organic matter, loss of effective soil depth for root development; and deterioration of plant vigor. It occurs due to factors such as declining fallow periods, over-irrigation, inappropriate use of herbicides and other chemicals, and burning of agricultural residues.

The underlying causes are related to continued uncertainty over access to land and land tenure, compounded by post-conflict population growth, resulting in migration of agriculturalists into marginal lands and into environments for which their knowledge and agricultural techniques are not well-adapted.

2.7 Natural Disasters

2.7.1 Flood

Cambodia experiences flooding every year, during the August-November monsoon, the extent of which varies from year to year, but the area of inundated land is normally in the region of up to 4 million ha (Nedeco, 1998). The most densely settled part of Cambodia is on floodplain of the Mekong, Tonle Sap, and Tonle Bassac. For millions of people living in these regions, the annual floods are a vital part of their livelihood, providing a wealth of biodiversity and increasing soil fertility in the basin. Occasional extreme flooding however, such as that experienced in 2000, poses a risk to communities and causes a great deal of damage to property.

The flooding experienced in 2000 affected almost all provinces in Cambodia (Chan et al, 2001). The death toll was reported to be 347, of whom 80% were children. Over 3.4 million people had to be evacuated from their homes, and the government estimated the cost of physical damage to be \$161 million (MRC, 2003a). These figures demonstrate the devastating impact that flooding can have in Cambodia on food security. In addition, damage to roads and bridges often cannot be repaired quickly, which increases transport costs and impedes social development.

The natural cause of flooding is an increase in rainfall and runoff over saturated soil, however it can be resulted from human influences including climate change, deforestation, land degradation, and changes in flood storage capacity and other development such as land-filling for urbanization (MRC, 2003a).

MRC and MOWRAM provide a flood warning service based on real-time transmission of observations at nine stations, and a Flood Forecasting Model. Forecasts for the Mekong mainstream are provided by MRC to the Cambodia National Mekong Committee, Cambodia National Committee for Disaster Management, RGC ministries, and the public via the Internet and news media. Whilst these improved warning systems may help to mitigate the effects of flood, they are unfortunately not able to completely safeguard those in effected areas, also due to the fact that post-flood hardship among the rural poor is more severe than the flood itself, (CARE, 2002).

The policy elements for the disaster reduction caused by flooding are as follow:

- Promote and pay an attention on the study and construction on protective dams along with canals as to minimize the natural disaster caused by water;
- Implement all relevant measures as to reduce the flood in affected areas that bring the economic potential which will be resulted by educating to the communities, dissemination of information to the public and other broadcasting systems;
- Immediate response to those areas which were affected by drought and flooding, and the disaster caused by water;

- Continue to provide incentives together with the promotion to every citizen and institutions to participate into the process of disaster reduction by preparing safety hilly places together with the supply of necessity equipments, machineries, training and demonstration of new technology which response to the actual situation;
- Participate actively in the national, regional and international programs for the reduction in adverse impacts caused water disaster.

2.7.2 Drought

Drought is a problem in parts of Cambodia during the rainy season with some effects during dry season too, although not to the same extent as seen in countries along the Mekong. Cambodia in general is rich in water resources; however, some areas in this country also face water shortage. Cambodia's groundwater resources are estimated to be more than one thousand times the current demand (MOWRAM, 2000). The extent of drought varies from year to year, as with flooding, with the impact being more pronounced in some years than others. In 2002 for example, Cambodia experienced both drought during the dry season, and extreme flooding during the monsoon, however the impact of the drought was estimated to be more widespread than that of the flooding (MRC, 2003a).

Drought causes hardship in terms of reduced access to safe drinking water, and threatens food security due to lack of water available for agriculture and fishing. In the particularly bad drought year of 1994, crop losses reached as high as 54% in Battambang province (MOWRAM, 2000). Reduced rainfall early on in the rainy season can effect land preparation and planting, and later on in July and August can affect transplanting of rice and cause poor growth. In addition, low water level in rivers leads to a smaller area of land available for use for recession rice growth as flood waters recede (Mckenney & Tola, 2002). Drought may be caused by insufficient rainwater storage or absorption for use in the dry season.

CHAPTER 3 Institutional framework and stakeholders

The National Focal Point of UNCCD, the member of Sub-Regional, Regional, the status of National Action Program (NAP) and other related committee appear in **Annex 1**.

3.1 The National Institutional arrangement

The Cambodian government's environmental policy departs from the observation that environmental and natural resource issues are interrelated with other problems such as poverty and underdevelopment. Consequently, environmental concerns are addressed from a cross-sectoral perspective: the government tackles environmental problems while at the same time targeting closely related problems like poverty, access to land and governance issues, and the other way around. This approach is reflected in a number of strategic programmes, such as the 1994-95 National Program to Rehabilitate and Develop Cambodia (NPRD), the SEDP I (1996-200) and the SEDP II (2001-2005).

The Government's environmental protection and natural resources management efforts are guided by four principles. The first principle is the recognition of the link between poverty alleviation and the environment. To safeguard the environment, the Government will increase the economic opportunities to the rural poor. Natural resource degradation is in part due to exploitation by the rural poor, who are seeking to satisfy their basic needs. Reducing rural poverty is therefore essential for achieving sustainable management of the environment.

The Royal Government's Rectangle Strategy launched in July 16, 2004 recognized that the Government would enhance agriculture sector in Rectangle I such as Improve agricultural productivity and diversification, Land reform and de-mining, Fisheries reform, and Forestry reform which focusing on sustainable forest management policy, protected area system, and community forestry (Rectangle Strategy for Growth, Employment, Equity and Efficiency).

On the national level a number of Ministries and Departments would be directly concerned with any land-use planning program in Cambodia, although none of them has yet a specific section or office dealing with Land Use Planning (LUP). As mentioned earlier, the MLMUPC has recently been nominated as a focal point and lead agency for Participatory Land Use Planning (PLUP) network. MLMUPC also has the national mandate on land policy development, land management, land administration and land distribution (cadastral services). On the other hand, the Ministry of Interior (Mol) is in charge of guiding the decentralization process in Cambodia, which will have many implications on PLUP in future.

At the present time, the Ministry of Agriculture, Forestry and Fisheries are busy preparing Prakas and many other regulations in order to implement the new forest law comprehensively and effectively. The Forestry Administration of the Ministry of Agriculture, Forestry and Fisheries that has been charged to function as the Secretariat of the National Committee for Management and Executive forest management policy, in cooperation with GTZ of the Cambodian-German forestry project, have initiated and prepared the National forestry policy statement draft with key aims of future national forest policy of Cambodia.

At least 5 government Ministries such as Ministry of Agriculture, Forestry and Fisheries (MAFF) Ministry of Environment (MoE), Ministry of Land Management Urban Planning and Construction (MLMUPC), Ministry of Water Resource and Meteorology (MoRAM), Ministry of Rural Development (MRD), together with many line agencies in both level central, provincial and local community or NGOs/IOs to carry and support at the major projects or programs in implementation of sustainable development and natural conservation.

3.2 Combat Land Degradation, Natural Resources, Mitigation and Livelihoods

The ‘Natural Resource Management and Livelihoods’ program will a four and half year period (from July 2006 to December 2010), working in 707 communes mostly in areas outside the main rice-producing provinces. The program will be funded jointly by DANIDA and DFID through a single “Multi-Donor Livelihoods Facility (MDLF) to ensure a harmonized approach, aligned to Government policy. The Immediate Objective of the Program and Development Objective of each component are to: “reduce the vulnerability of poor rural people whose livelihoods are dependent on natural resources.” The Immediate Objectives for the Components are:

- Natural Resources Management (NRM) in Research and Development: Improved local government processes for equitable and sustainable natural resource management
- Civil society and pro-poor markets: Improved local presence and capacity of civil society organizations and business support for pro-poor community development
- Sector and policy development. Improved access to rights and services, within an *effective and coherent policy environment, including:*
 - Lands Access and user rights to land secured
 - Fisheries Access to aquatic rights and services improved
 - Forestry & Environment. Pro-poor forest management options developed.

The program strategy is focused on the commune council, and communities within it, to enable them to play an active role in Natural Resource governance. This will result in: a) secured rights, titles and access of poor people to natural resources, land and water; b) funds for NRM investment through the Research and Development mechanism; d) greater engagement and opportunity for communities in the sustainable management, processing and marketing of natural resources; e) improved capacity for ensuring rights and secured and services delivered by line agencies, within (e) a more coherent policy and management administrative framework.

The World Bank-financed Land Management and Administration Project seek to reduce poverty, promote social stability, and stimulate economic development. The specific objectives of the project are to improve land tenure security and promote the development of efficient land markets. These objectives will be achieved through: (a) development of national policies, the regulatory framework, and institutions for land administration; (b) issuance and registration of titles in urban and rural areas; and (c) establishment of an efficient and transparent land administration system. The proposed project is the first phase of the government's Land Administration, Management, and Distribution Program (LAMDP), which is expected to be implemented over 15 years. The objectives of the LAMDP program as stated in the Land Policy Statement of the Royal Government of Cambodia (May 2001) are to: (a) strengthen land tenure security and land markets, and prevent or resolve land disputes; (b) manage land and natural resources in an equitable, sustainable and efficient manner; and (c) promote land distribution with equity.

3.2.1 Rural Livelihoods Improvement

The IFAD/UNDP Rural Livelihoods Improvement project, working in Kratie, Preah Vihear and Ratanakiri provinces, has the goal of improving the livelihoods of the rural poor in the targeted communes of the three provinces. The project objective is that a sustainable impact on agricultural development and natural resources management is achieved in the targeted communes in the three provinces. The expected outputs of the project are: (1) Farmers and communities adopt improved farming and natural resource management systems; (2) Improved services delivered to the poor in

a participatory and demand-driven manner; and (3) Increased capacity for policy analysis and pro-poor policy formulation for the agricultural sector and for mainstreaming gender within the sector.

The Small Grants Program to Promote Tropical Forests (PTF) is funded by the European Commission. It supports community-led sustainable forest management initiatives in Cambodia, and aims at empowering communities with alternative income activities using renewable forest resources. It also aims to help eradicate poverty, promote gender equality and empower women. The program provides micro-grants for the implementation of forest-related projects by non-government and community organizations. These include innovative technology for charcoal production using non-wood raw material, energy efficiency in sugar palm processing through improved cooking stoves, sustainable processing and marketing of non-timber forest products, community eco-tourism, agro-forestry, organic farming, soil conservation, rice intensification, pest management, home gardens, aquaculture, livestock and community-based water management. It targets 157 villages involving 27,621 households in 38 communes across 14 provinces. The grants are from €20,000 to €60,000 in total.

An AusAID funded project called AQIP jointly implemented by MAFF, PDAFF, PDWWA, MOC, and MRD is being implemented in the provinces of Kandal, Takeo, Prey Veng, and Svey Rieng strengthen agricultural programs by providing high quality services in rice production, rice post harvest technology and fruit and vegetable marketing which contribute to a secure food supply, increase agricultural output and add value on a sustainable basis.

The Special Food Security (SPFS) implemented by MAFF and MOWRAM is being carried out to increase the level of food security of poor farmers in RGC and thereby contribute to the human security and reduced vulnerability. This is being implemented in the provinces of Kampong Cham, Kampot, Kampong Thom, Pursat, Seem Reap and Takeo with a total budget of \$1,127,772, for the a period of three years (2003-2005)

The ADB funded ASD Program was carried out by MAFF and MEF with a total budget of \$25 million implemented in 2004 and will terminate in 2006. The ASD Program supports the country's agriculture commercialization and diversification and promotes the participation of the poor and women in agricultural production, marketing, and postproduction systems. Another project funded by the ADB and implemented by MAFF/MEF will provide farmers with effective agricultural support services and has been designed to increase commercialization of agriculture and reduce poverty. The project started in 2004 and will terminate in 2008.

The "Integrated Pest Management Farmer Training Project Phase II" funded by DANIDA and implemented by MAFF was carried out to implement the national program on Integrated Pest Management and Integrated Crop Management to improve the livelihood of rural communities by empowering farmers to apply sustainable agricultural production systems

3.2.2 National Capacity Self Assessment

Cambodia recently completed a UNDP-GEF funded NCSA Project which identified priority capacity needs to enable the country to meet its obligations to the three Conventions (UNCBD, UNFCCC, and UNCCD). Specifically, it identified several action programs that will improve the delivery of services of various national government involved in land degradation and sustainable land management.

CHAPTER 4 Status of land use and its changes

4.1 Present status of land in Cambodia

The major causes of land degradation in the country are deforestation by the war, unsustainable agricultural and water management practices, land use changes for development, and industrialization. The major process of land degradation is soil erosion due to water and wind erosion. The other processes include problems of water logging, salinity-alkalinity. The process of desertification is impacting every aspect - loss of agricultural productivity, loss of natural resources (forests and vegetative cover, biodiversity, soil changes), socio-economic conditions (economic losses, problems of sustenance, decline in quality of life), etc. Desertification is land degradation in the drylands due to a number of factors including climatic variations and human activities. Man-made causes include expansion of agriculture and unsustainable agricultural practices such as over cultivation, nutrient inputs, poor irrigation practices, deforestation and overgrazing. Such unsustainable resource management practices are often induced by population pressures, chronic social conflicts and disruption of social systems, inappropriate government policies and poverty. People affected by desertification often need to draw on their limited assets in order to survive, which accentuates their poverty. This constitutes a vicious cycle linking deteriorating natural resources to deteriorating livelihoods as people need to encroach further on fragile soils, sparse vegetation and limited water resources to meet their basic needs for food, shelter and livelihood. Many of the complex causal relationships are not fully understood. It is often very difficult to separate the causes from the effects.

Soil degradation results primarily from inappropriate land use and poor land management – from land being used in a manner incompatible with its bio-physical capability (Sanders, 1992a). Farm households and other land users rarely deliberately degrade the land resources on which their livelihoods and welfare needs depend. In the past inappropriate land use and poor management has wrongly been claimed to be symptoms of local land users' laziness and environmental ignorance (IFAD, 1992). In reality the root cause lies in the range of economic, natural, social and political pressures that force farmers to use the land in the way they do. Unsustainable agricultural practices include excessive use of fertilizers, pesticides, frequent cropping patterns, inappropriate technologies, or choice of crops/ plants, etc. Decline in fertility is a major effect of erosion and the term is best used to describe the combined effect of processes other than erosion. The main processes involved are:

- Lowering of soil organic matter, with associated decline in soil bio-physical activity;
- Degradation of soil physical properties (structure, aeration, water holding capacity), as brought about by reduced organic matters;
- Adverse changes in soil nutrient resources, including reduction in availability of the major nutrients (nitrogen, phosphorus, potassium), onset of micronutrient deficiencies, and development of nutrient imbalances; and
- Build-up of toxicities, primarily acidification through incorrect fertilizers use.

In agriculture, many dangerous pesticides banned or restricted in other countries have been found in use in Cambodia. The products often arrive in Cambodia from Vietnam or Thailand and are labeled in a language and script incomprehensible to even the minority of Cambodian farmers who are literate. Within the last two decades, Cambodia is believed to have excessive and inappropriate use of agricultural chemicals, thus causing environmental and health hazards (Yang et al., 2001). It was reported that all farmers have used pesticides in vegetable farming and 40% to 86% - used in rice cultivation, and most of these pesticides are WHO class 1a and 1b (Methyl parathion, Mevinphos...) (Ngin & Laurence, 2004). The report also states that around 1.3 millions liters or Kilograms of pesticides were in 2000 used in vegetable, mung bean and rice cultivation in

6 provinces, and nationally the amount is close to 3 millions (CEDAC, 2001) in (Ngin & Laurence, 2004). Lacking appropriate knowledge on the harmful effects on health and the environment, highly toxic pesticides is commonly used by farmers without appropriate protection and sufficient information about the dose and application procedure. Problems of children exposed to harmful chemicals are also reportedly widespread. Although many dangerous pesticides are officially banned under Cambodian law, there is a lack of control of what is sold and the prohibited goods remain widely available.

Integrated Pest Management has been promoted through farmer field schools and trials to educate people on environmentally friendly crop improvement techniques. The main purpose of the introduction of IPM is to eliminate the use of pesticides and chemicals in agricultural farming, and to protect of the health both producers and consumers. The IPM is strongly supported by the Government of Cambodia as a strategy for poverty reduction.

In Cambodia, all domestic and some industrial wastes are discharged directly without the prior treatment. Natural wetlands are the primary sink for sewage waste. Consideration has been placed of potential development of urban waste treatment facility for major cities in the country. Is it affected on land degradation, biodiversity or climate change, if possible to find areas affected.

In Cambodia, solid waste is the most visible form of pollution. Solid waste collection and management are problematic for all urban areas in the country. For example only 20-25% of daily waste generation is collected in Sihanoukville and the remaining is mainly disposed of in public lands, bush, along the roadsides, and other places (Kong Sokorn, 2004). There are not sufficient appropriate landfills for all large cities in the country. A plan for closing current open landfill and establishment of a better designed one for Phnom Penh is being designed with the assistance from the government of Japan. Currently there are no facility and plan for enforcing waste segregation and their handling. Hazardous wastes including hospital wastes are indiscriminately handled with the general wastes. Factors contributing to weak solid waste management in Cambodia include limited financial allocation, short of all types of equipment and facility, poor understanding about waste disposal and handling, lack or weak regulatory enforcement and lack of overall waste management plan.

Forest management policy, land accessibility and productivity, water resource management, air and water quality issues, and sustainable development of basic infrastructure such as energy alternatives, roads, and growth of cities and towns are among the most important environmental challenges faced by Cambodia today.

This report aims at broadening the understanding and appreciation of the extent to which these problems affect national development.

4.2 Land use and its changes

Human activities are continuously changing and affecting land and landscape. In this connection, the rapidly increasing world population has placed great demands on the available living space in many countries. In Cambodia, business interest takes precedence over small-scale farmers, forcing many subsistence farmers to give up their land to be replaced by industries or commercial farms with requires skilled or semi-skilled workers.

Based on these above listed issues, make many farmers loss their own plots and start to clear the new forestland for farming activities. Within return shifting cultivation causes the lost of soil fertility, damages the soil structure and/or the cost of their agricultural products is not expected to

their labor expenses. Finally, they become no more reliance on agricultural performance and leave the farm to seek for job opportunity in-by factories in cities. This in return gives rise to many urban problems.

Land reforms are crucial to increase agricultural production by providing titles and security of tenure to people, especially farmers over lands they are legally occupying. Already the increases in population are bringing pressures on land ownership. From every farmer owning some land in early 1980s an estimated 12% of farmers do not own any land at present. However, in others critical areas some progress have been achieved. An Inter-Ministerial Council for Land Policy was established in 2000. The first phase of government's 15 years Land Administration, Management and Distribution Program (LAMDP) was approved in 2002. Its goals are to improve land tenure security and promote the development of efficient land markets. The Land Law was enacted in 2001 as a comprehensive law on land and an Interim Land Policy Framework was adopted in 2002.

4.3 Land use and fertilizer use

The cultivated area 21 % is mainly concentrated in the lowland around the Tonle Sap Lake and in the South of the country, on the North side of the Mekong River. The Uplands crop/fruit garden occurs especially along the banks of the main rivers.

In contrast of the distribution of the cultivated areas the forest and other natural vegetable are found in the northeastern, in the Northern and in the southwestern parts of Cambodia.

The total forest areas, which is before were about 13,320,100 ha (covering 73% of the land areas) of which 47,622.30 are dense evergreen broad-leafed forest (consisting of 26% of the total forestland). Deciduous forest of Cambodia occurs mainly in the North Eastern parts of Cambodia.

In Comparison to historical data, the total area of forest has decreased from 13,320,100ha to about 12,015,100ha or 1,300,000ha, since 1970. The statistics and/or the forest areas was continued to loss of many other millions hectares during the last 20years of conflicts. In consequence, the forest resources has been depleted and destroyed, and the releasing of free lands off agriculture are confronted to loss its quality.

Fertilizer application, together with modern varieties, irrigation and other improved management practices has been driving the growth in food production in South- East Asia over the past 25 years. Fertilizer use in Cambodia, however, has been very small as compared to the other countries in the region. Cambodia farmers applied between zero and 8,000tons of organic fertilizers (NPK) per annum in the period 1965 to 1990, but with upwards of 40,000tons per year had been applied for the last two years (FAG unpublished data). This compares with over 500,000 tons to 1,000,000 tons that being used in other neighboring countries in 1990. Indeed of given the impoverished nature of soils in much of the rice growing areas the fertilizer use in **Cambodia will not likely to continue to use chemical fertilizer but Royal Government of Cambodia push forward to promote organic farming.**

CHAPTER 5 The strategies and priorities established within the framework of sustainable development plans/or policies

5.1 National policy and legal framework

In the year of 2005, the Ministry of Agriculture, Forestry and Fisheries (MAFF) has been trying all the best to enhance the implementation of the policy and Rectangular Strategy which is launched for employment creation, efficiency and the core strategy is good governance. The Rectangular Strategy is consisted of 04 main areas:

- (i) Enhancement of Agriculture Sector;
- (ii) Rehabilitation and reconstruction of physical infrastructure;
- (iii) Employment and private sector development;
- (iv) Capacity building and human resource development.

The general situation for agriculture sector, 2005-2006 is considered to be progressive with better achievements made during the implementation. There have been observed that the production of all major crops has been in great performance because of the better weather condition if compared to last year. For the livestock production, even there is some difficulties in bird flu outbreak occurred several cases but the prevention measures have been made timely and there was not a problem in livestock development. The natural resource management, forestry, fisheries, land has been encountered several issues, especially the anarchy of the forest land grabbing as well as the clearance of forest land.

In implementing the Royal Government of Cambodia's (RGC's) policy goal is to encourage the country's economic growth and development with sustainability. In this connection the Ministry of Agriculture, Forestry and Fisheries (MAFF) has initiated actions intended to achieve the Royal Government of Cambodia of Long term objective of the sustainable development of Natural Resources in the Forestry, Land and Fisheries sub-sectors of the economy.

The main policies for Cambodia National Development plans in Socio-Economic Development Plan II (SEDP-II) are:

- (i) Sustainable economic growth,
- (ii) Social and cultural development, and
- (iii) Sustainable use of natural resources and environment.

On-farm fertilizer by manure trials were collaborative activities involving farmers and DAALI staff based in Kampong Cham, Kampong Thom, Siem Reap, Battambang, Pursat, Kampong Chhnang, Takeo, Kampong Speu, Kampot, Prey Veng, Svay Rieng and Kratie provinces. Farmer's co-operators were selected for their (a) willingness to work with DAALI staff to improve fertilizer management strategies in these provinces and (b) for their interest in using locally-available cow manure in their on-farm soil fertility management programs.

Our results described an opportunity to improve on-farm fertilizer management strategies by reducing the use, and thus cost, of inorganic fertilizer by using manure produced and stored on-farm; an opportunity quickly lost as supplies of locally available manure declined and transport distance and cost increased. However, more information is required if we are to better define the supply of, and markets for, cow and other farm yard manure in order to better understand the opportunity cost of its on-farm production. This should include the identification of alternative on-farm uses of manure, its value if sold in local markets, quantities being produced versus on-farm requirements, its nutrient content and fertilizer replacement value, etc. This report are taken

onto farmer fields in other rice-growing districts and provinces and linked to other soil fertility management programs targeting food security and rural livelihoods in Cambodia.

The objective of the SEDPII states the sustainable management and use of natural resources and the environment and requires a balance to be struck between economic, cultural and environmental objectives, and between economic efficiency of resource use and equity

The Statement of the National Forest Policy Sector includes the conservation and the sustainable management of the country's forest resources to ensure provision of a maximum contribution to the sustainable socio-economic development of the Kingdom of Cambodia.

The Objective of Forestry sector reform as stated in the Forest Policy Reform is, among others, to ensure sustainable management of forest resources by maintaining the remaining national forest resources as permanent forest asset through conservation and sustainable management in order to maximize the forest covers and resources; and conservation and sustainable management of forest resources to maximize contribution to sustainable socio-economic development in the Kingdom of Cambodia.

One of the objectives of the Fishery Sector Reform is to ensure conservation and research to enhance natural stocks in order to contribute to national economic development.

The goal of the forest sector strategy of the Royal Government will ensure sustainable forestry management based on the three pillars as follows:

1. Sustainable forest management policy, to ensure the rational and strict monitoring of forest exploitation according to the international best practices in forest management that require adequate forest reserves for domestic consumption, protection against drought and floods as well as wetlands that serve as fish sanctuary;
2. Protected Area System to protect biodiversity and endangered species; and
3. Community Forestry as a sound, transparent and locally managed program.

A Forest Law was adopted by the National Assembly on 30 July 2002. In December 2002, the MAFF suspended logging activity within the forest concessions. Also, a comprehensive institutional framework for protected areas that involves the MoE, the MAFF and provincial, district and municipal authorities has been developed;

The Royal Government's energy policy aims to provide an adequate supply of energy and electricity, encourage the exploration of environmentally and socially sound energy sources, while promoting the efficient use of energy; such as bio-gas, fire wood...etc.

The Royal Government has reviewed the remaining forest concessions, cancelled many concessions found violating the agreement, and evaluated the concession system to ensure efficient management. The Royal Government will also continue to promote reforestation.

5.2 Legal aspects

The RGC is endeavoring to implement a coordinated set of laws, programs of work, and institutional arrangements regarding land which are directed towards enabling the achievement of national goals of economic development, poverty reduction and good governance, as described in the SEDP, National Poverty Reduction Strategy, and Government Action Plans.

The Government's environmental protection and natural resources management efforts are guided by four principles. The first principle is the recognition of the link between poverty alleviation

and the environment. To safeguard the environment, the Government will increase the economic opportunities to the rural poor. Natural resource degradation is in part due to exploitation by the rural poor, who are seeking to satisfy their basic needs. Reducing rural poverty is therefore essential for achieving sustainable management of the environment.

The Land Law 2001, which codifies clearly property rights of Cambodian citizens and establishes the basis for a modern land management, administration and registration systems, is aimed at sustainable and improved use and management of land resources. The Law provides for both individual and communal land ownership, gives existing legal occupants legal protection and provides for the provision of land to landless through the Social Land Concessions Program, although the institutional mechanisms specified are not yet operational. Forestry Law 2002 establishes the roles, responsibilities and jurisdiction of the Forest Administration over the nation's forest; defines permanent forest estate and forest concession management; ensures wildlife and genetic resources conservation; allows for people's traditional use rights and creation of community forests; and permits the indigenous communities to carry on slash-and-burn farming in accordance with a sub-decree. Community rights to creation and management of Forest Community and the procedures for this is fully elaborated in the 2003 Sub-Decree on Management of Forest Communities. Besides the laws on land and forestry, Cambodia has other pieces of legislation, including the Royal Decree on the Protection of Natural Areas in 1993, the Law on Environmental Protections and Natural Resources Management in 1996 and the Sub-Decree on Environmental Impact Assessment in 1999 that govern and have implication for the use and management of land, forest, natural resources and environment.

The Government is committed to continuing the reform of the land and forestry sectors. For land reform, the Government is determined to "strengthen an equitable and efficient system of land management, distribution and use, including land registration and distribution, land tenure security, eradication of illegal settlements and land grabbing and the control of land ownership concentration for speculative purposes as well as registration of indigenous peoples' land rights". In the forestry reform, the policy is committed to "promoting forestry good governance and co-management, and biodiversity conservation". Although the Land Law of 2001 and Forestry Law of 2002 and certain subordinate legal instruments have been put in place for Cambodians to implement their rights to land and forest, more are necessary, including: (i) enactment of the Statute on the Legal Entity of Indigenous People and the Sub-decree on Community Land Titling; (ii) implementation of the Sub-decree on Economic Land Concessions, to ensure a transparent and participatory process in the allocation practices; and (iii) sub-decree on Slash-and-Burn Cultivation Practice.

The Government is committed to an open economy and improving agriculture through crop diversification and intensification and increasing the value added of crops, livestock and fisheries production through processing and exports.

The Government has introduced a number of institutional reforms over the last decade to establish a policy and institutional framework for a market-based agricultural economy. The current Asian Development Bank (ADB) Agricultural Sector Development Program (ASDP-2) is addressing the following three elements of the unfinished policy reform agenda: (i) improving farmers' ability to raise productivity and diversify towards higher value products; (ii) improving the market environment for private agro-based enterprise growth; and (iii) strengthening institutional capacity for competitive agricultural commercialization.

A number of institutions and organizations are involved in land management in RGC. Overall support to the implementation of the country objectives with respect to Natural Resource Management and the Environment comes from the very broad mandate of the MoE that includes the following general aspects:

- Protection of the environment against adverse effects of economic development;
- Conservation through the creation of protected areas;
- Development of laws and sub decrees with respect to environmental management, conservation and protection;
- Strengthening of existing laws and sub decrees with respect to environmental management, conservation, and protection;
- Preparation and implementation of national and regional environmental action plans through co-ordination functions; and, ensuring sustainable development.

Norms and regulations under the forestry laws adopted by the Ministry of Agriculture, Forestry and Fishery and the Council of Ministers including:

- Decision on the forests products and sub-products to be forbidden to get collection.
- Decision on the model seal put on containers loading forests products and sub-products for exportation.
- Decision on the formulation and right of transitional penalization.
- Decision on the rules of management and the use of seal hammer of Forestry Administration.
- Decision on the sub-products of forests in Cambodia.
- Sub-Decree of procedures regarding to the creation, the assignment and the registration of permanent forestry property.
- Decision on the procedures of eligible to get collection of sub-products yearly at outside limits of concession forests.
- Other Regulation on Forestry are preparing

5.3 Ratification of international conventions

In addition to the existing set of policies, laws, and regulations, the legislative body and the Royal Government of Cambodia (RGC) are signatories to a number of international treaties and conventions as follows. Those that relate to natural resources management and environmental protection include:

1. International Convention to Combat Desertification (UNCCD) (1994)
2. The Convention on Wetlands of International Importance, RAMSAR Convention (1999);
3. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1997);
4. Framework Convention on Climate Change (FCCC) (1996);
5. Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin (MRC) (1995);
6. Convention on Biological Diversity (CBD)(1995);
7. International Tropical Timber Agreement (ITTA) (1995);
8. International Convention for the Prevention of Pollution by Dumping of Wastes and other Matter (MARPOL) (1994 and later additions);
9. Convention Concerning the Protection of the World Cultural and Natural Heritage (1992).
10. Cambodia become a Member of the World Trade Organization (WTO) in October 2004;
11. The United Nations Convention on the Law of the Sea (UNCLOS) and the Exclusive Economic Zone;

Cambodia is also member of the Co-ordination Body of the Seas of East Asia (COBSEA). This body has established a global action plan for the protection of the marine environment from land-based activities, which includes the requirement for the development of national action programs, Cambodia is a signatory of the Treaty of Amity and Co-operation in Southeast Asia, and in January 1999, became a full-fledged member of the Association of South East Asian Nations (ASEAN).

Cambodia is also a member of the Association of Southeast Asian Nations (ASEAN) in which the Asian Senior Official on Forestry (ASOF) has been playing major important role in forest management in the region. In this connection, Cambodia has been involving in the region with the following regional programs:

- International issues affecting forestry and forest products;
- International Forest Policy Process (IFPP);
- Peer Consultation Framework (PCF);
- Social forestry policy;
- Asia Forest Partnership (AFP);
- Forestry research and development;
- Forest law enforcement and governance (FLEG);
- Monitoring assessment and reporting mechanism (MAR);
- Clean development mechanism in forestry (CDM);
- Asia forest alliance improving the sustainable management of forest resources and biodiversity in Asia;
- Regional Custom Cooperation Framework;

Despite those laws, regulations, and international conventions, are exist and made them available by the RGC, more work need to be carried out to put into practice the management, the law enforcement to safeguard Cambodia's forest and to reach the country's objectives of the RGC's Rectangular Strategy and its National Strategic Development Plan (NSDP) 2006-0210. These would include the involvement of local communities, private sector, and civil society in its application. Those existing policies and legal frameworks are the bases for the implementation and protection of national economic growth and environmental conservation in particular and for the combat degradation of lands, soil quality and desertification in general.

5.4- STRATEGIES AND PRIORITIES IN FORESTRY SECTOR

Cambodian forests have always been an essential feature in the patterns of life for its people and continue to be of fundamental environmental, social and economic importance in national and local level development. The forests are valuable for the production of large and small industrial logs, for fuel-wood and food for the people living in rural communities, for regulating water flows in the Mekong and other rivers, for controlling erosion of soils and for the conservation of animal and plant biological diversity. Furthermore, forests are a natural source of wealth and, if managed wisely, can continue to provide good resources for the current and future generations, both at the local level and in terms of Government revenues for rehabilitation and development.

Forestry sector is framed by the major national policy frameworks, which the actions within Cambodia are contributing to poverty reduction through a mechanism that allow all relevant and interested forestry stakeholders to participate in resources development for sustainable economic growth, social and cultural prevention, sustainable use of natural resources and environmental protection. This articulated in the second Socio-Economic Development Plan (SEDP II). In institutional terms, the forest sector is composed of different actors and rules that provide the incentives to behave in particular ways and ultimately determine the form that policy takes on the ground. The Royal Government of Cambodia has declared its intention to reorient forest policy

towards increasing reforestation activities through participation of private sector, local communities, armed forces and all levels of authority (RGC, 2003). The government has been supporting the community forestry which was initiated by local communities with strong supports from NGOs.

5.4.1- An Over View of Cambodia's Forest Cover

Before 1970s, Cambodian forest cover had been assessed and evaluated based on FAO definition from which it was stated that “ *Forests are eco-system that level of plant or bamboo cover not less than 10% and generally related to life of plants and wildlife include natural land areas not under agricultural development*” . Based on this definition, in 1969 the forest area was reported 13.2 million ha (73% of the country area).

In 1993, 1997, and 2002, the interpretation result from satellite imagery of the GIS Unit of the Forestry Administration showed that forest cover remained 11,392,347 ha (62.7%). The 2002 assessment result was based on the new definition of forest cover which is applied by many countries of the greater Mekong sub-region in which the level of plant and bamboo cover not less than 20%. This is completely different from the definition in 1970s. However, the RGC acknowledges that this is not the only reason that causes the forest cover reduction.

The detail figures and information on forest covers and its classifications based on forest types are illustrated in **Table 1** below. The Forest cover map illustrates the extent of forest areas and vegetations across the country.

Table 1: Forest Cover in Cambodia¹

Types of Forests	Areas (ha)	Percentages
Forest cover (2002/2003):	11,392,347	(62.7%)
Forest Types ²		
- Evergreen Forest:	3,720,504	32.66 %
- Semi-evergreen Forest:	1,455,091	12.77 %
- Deciduous Forest:	4,833,138	42.42 %
- Wood Shrub-land Dry:	138,939	1.22 %
- Wood Shrub-land Evergreen:	150,017	1.32 %
- Bamboo forest:	28,952	0.25 %
- Other Forests:	1,065,706	9.35 %

¹ Cambodia: Forestry Statistics 2004.

² Percentage compared to total forest areas.

Cambodia Forest Cover Map – 2002

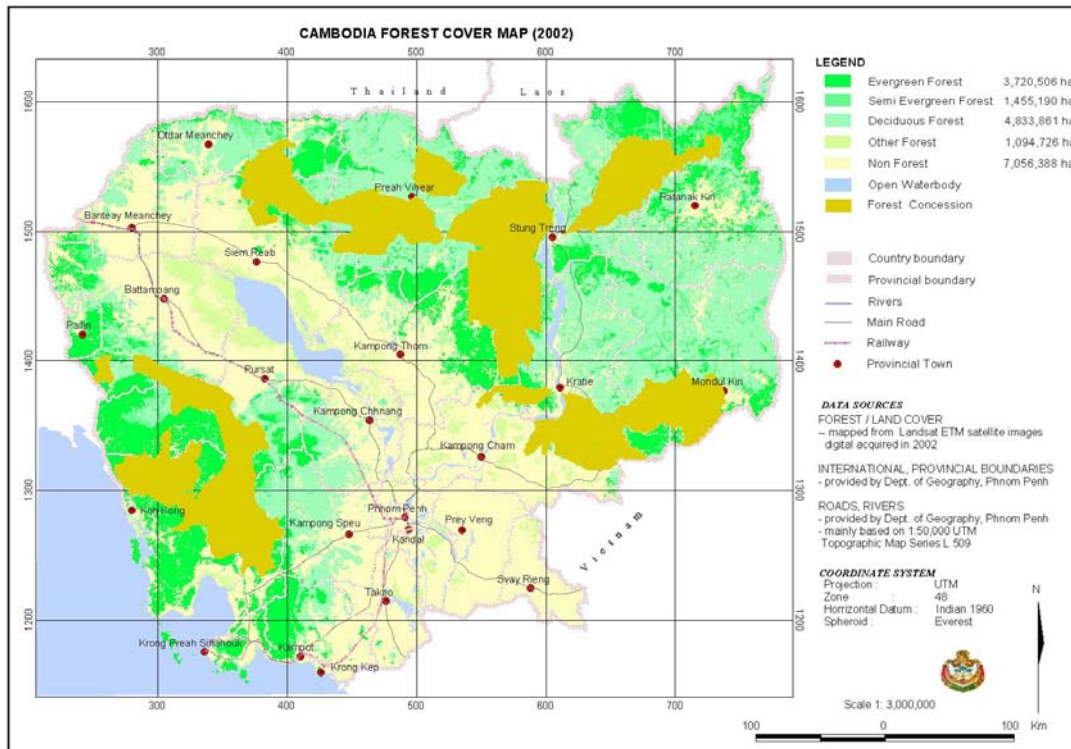


Chart 1: Forest cover 2002-2003

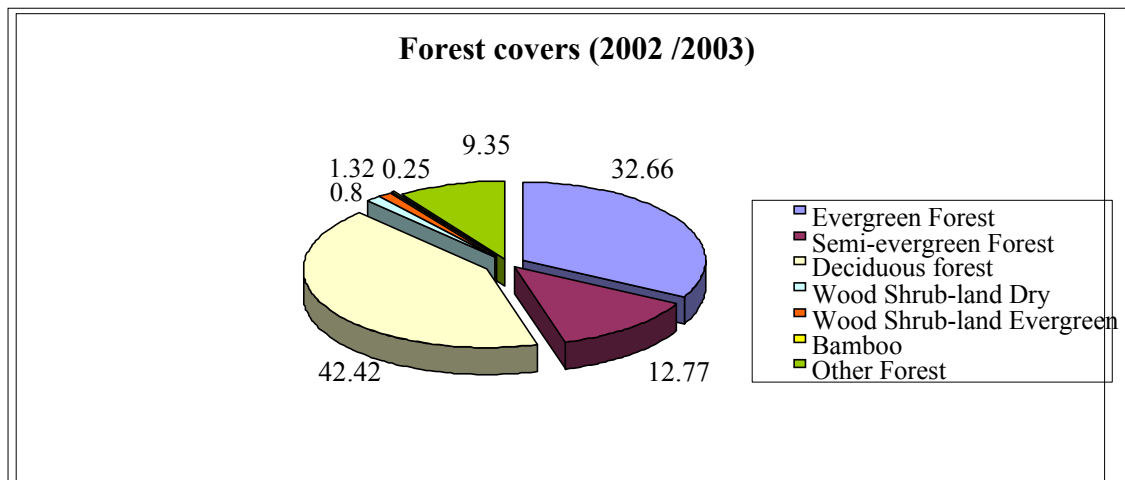


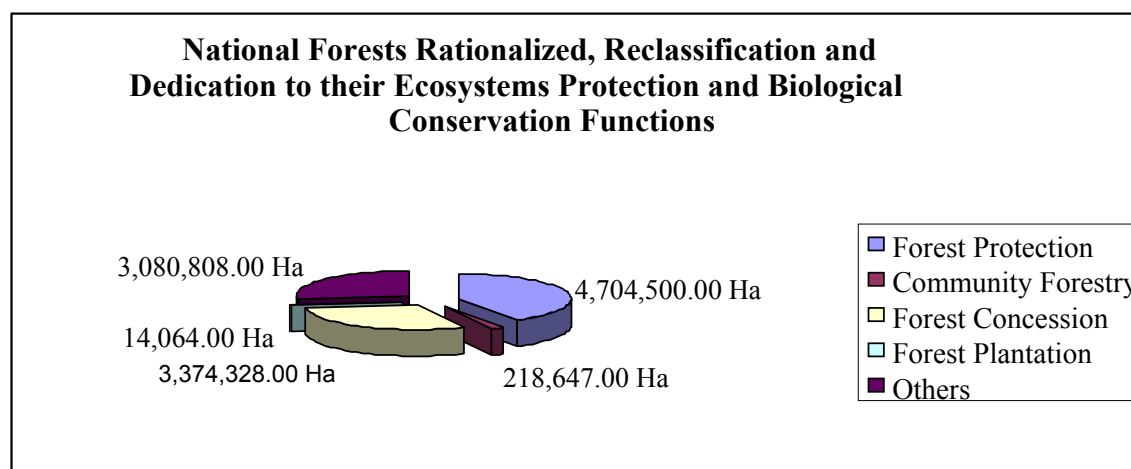
Table 2: Forest Allocation in Cambodia (as of December 2004)

Types of Forests	Areas (ha)	Percentages ³
Forest protection ⁴ :	4,704,500.00	41.29 %
Community Forestry ⁵ (274):	218,647.00	1.92 %
Forest Concession ⁶ :	3,374,328.00	29.62 %
Forest Plantation ⁷ :	14,064.00	0.12 %
Others:	3,080,808.00	27.04 %
Total	11,392,347.00	100 %

Surface Areas of all Types of Production and Protection Forests

Forest areas which considered as permanent forest reserves, according to the new forestry law, were classified into three categories namely: (1) Production Forests, (2) Protection Forests, and (3) Conversion Forestland for other development purposes. Protection forest in Cambodia in term of percentage is 41.29% of the total forest areas. This figure shows the highest percentage compared to other countries' areas of protection forest in the region.

Chart 2: Forest Allocation in Cambodia (as of December 2004)



Protection Forests have been maintained primarily for protection of forest ecosystems and natural resources therein. Protection Forests consist of the followings:

- a) Reserved forests for Special Ecosystem Management
- b) Reserved forests for Research Purposes
- c) Reserved forests for Water Regulations
- d) Reserved forest for Watershed Management
- e) Reserved forests for Recreation

³ Percentages were calculated in comparison to the total forest cover area.

⁴ This figure covers both Protected Forests (1,490,500 ha) and Protected Areas (3,214,000 ha) which were under FA and MOE respectively.

⁵ Source: Forestry Statistic in Cambodia, 2004 and the Atlas of Cambodia 2006.

⁶ Source: Forest Management Office.

⁷ Source: Forestry Statistic in Cambodia, 2004 (Summary of Forest Plantation, 1985-2004).

- f) Reserved forests for Botanical Gardens
g) Reserved forests for Religion Purposes

Table 3: Forest Allocation in Cambodia (as of September 2006)

Types of Forests	Areas (ha)	Percentages
Forest protection:	4,704,500.00	41.29 %
Community Forestry (274):	218,647.00	1.92 %
Forest Concession:	3,374,328.00	29.62 %
Economy Land Concession:	773,877.00	6.79 %
Others:	2,320,995.00	20.37 %
Total	11,392,347.00	100 %

Chart 3: Forest Allocation in Cambodia (as of September 2006)

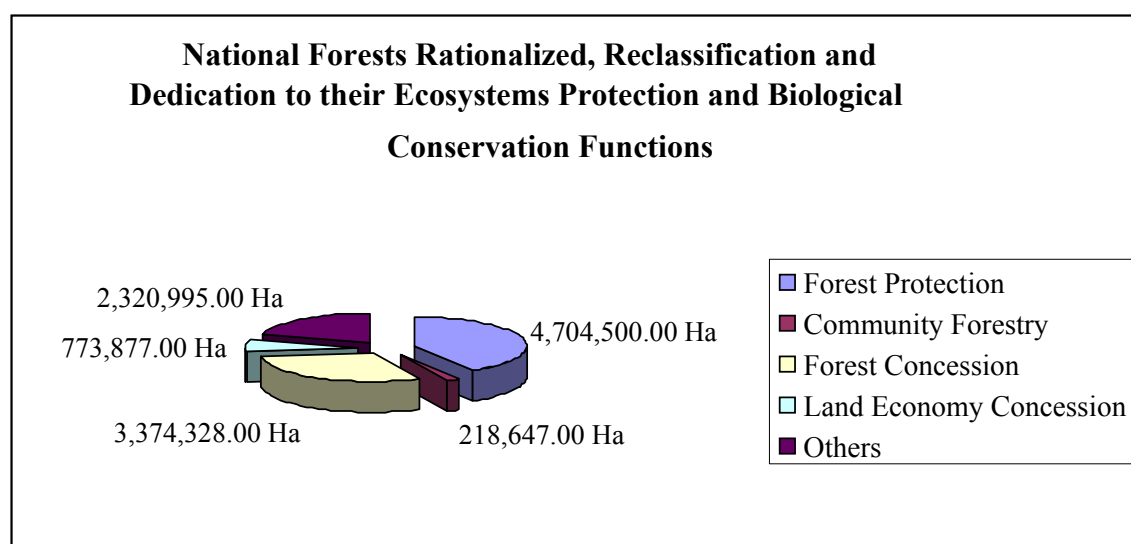


Table 4: Protected Forests (under management of FA/MAFF)

No.	Protected forests	Province	Years	Areas (ha)
1-	Bio-diversity-elephant corridors (Southern Cardamom)	Koh Kong	2004	144,275.00
2-	Seima Bio-diversity conservation	Mondul Kiri/Kratie	2002	305,440.00
3-	Seed orchard	Kompong Thom	2002	117.00
4-	Central Cardamom	Koh Kong/Posat/ Kg. Speu	2002	401,313.00
5-	Preah Vihear	Preah Vihear	2002	190,027.00
6-	Mondul Kiri	Mondul Kiri	2002	429,438.00
7-	Seed orchard (Dalbergia bariensis)	Preah Vihear	2001	13.00
8-	Trapeang Thmar	Banteay Meanchey	2000	12,650.00
10-	Kbal Chhay (Praek Toeuksap)	Sihanouk Ville	1997	6,027.00
11-	Phnom Tamao Zoological Garden	Takeo	1996	1,200.00
	Total			1,490,500.00

Table 5: Protected Areas (under management of MOE)⁸

No.	Types of protected areas	Areas (ha)	Percentages
1-	National Parks (7)	775, 100.00	24.11 %
2-	Wildlife Sanctuaries (10)	1, 916, 100.00	59.61 %
3-	Protected Landscapes (3)	101, 800.00	3.16 %
4-	Multiple Use Areas (3)	421, 000.00	13.09 %
	Total	3, 214, 000.00	100%

5.4.2- National Forest Policy

Based on the national goals of environmental protection, bio-diversity conservation, poverty reduction, socio-economic development, and good governance, the Statement of the Royal Government on National Forest Sector Policy has been developed and adopted in 2002. The main concept of the National Forest Sector Policy (NFSP) shows that Cambodia has been seriously concerned about the conservation and sustainable management of the country's forest resources. The NFSP was developed consistent to the Rectangular Strategy of the RGC, Forestry Law, relevant regulations, and the existing National Forestry Program (NFP).

The objectives of these policy initiatives within the set of national goals regarding forest resources are:

1. The conservation and the sustainable management of the country's forest resources shall provide a maximum contribution to the sustainable socio-economic development of the Kingdom of Cambodia.
2. The remaining forest resources of the country shall be considered as Permanent Forest Estate and managed by exclusively promoting conservation and sustainable forest management initiatives that directly contribute to the rehabilitation and conservation of a maximum stock of forested land and forest resources.
3. Within the context of conservation and sustainable forest management initiatives, a maximum involvement of the private sector and participation of the local population shall be achieved in order to ensure food security, poverty reduction and socio-economic development.
4. A wide range of coordinated multi-stakeholder processes shall be implemented to enable the harmonization of the different perceptions, interests and objectives of the various forest interest groups at all levels.
5. To continue to support reforestation of arable land and to protect those trees for the development of forest resources.

5.4.3- National Legal Framework

To ensure sustainable forest management, it is important that the forest resources, especially the permanent forest estate, are secured and protected from encroachment and that they are managed in accordance with best management practices involving the participation of local communities, who are dependent on the forest for their daily subsistence.

⁸ Source: The Atlas of Cambodia National Poverty and Environment Maps (2006)

For the sake of its country and peoples, both legislative and executive bodies have adopted and promulgated the *Statement of Forest Sector Policies, Laws, and Regulations* to manage the permanent forest estate, production and protection forests, and other forest land uses. Among them, the most important laws and regulations are *inter alia* summarized as follows:

In February 2000, the RGC adopted ***Sub-Decree on Forest Concession Management*** which is the first Sub-Decree that provides both legal and technical bases for the development of forest concession management system in Cambodia.

In July 2002 the RGC issued the ***Government Statement on National Forest Sector Policy*** which was committed for the conservation, good governance, socio-economic development, poverty reduction and management of the country unique forest resources in a sustainable manner now and for future generations. This policy has been taken into account the results and the follow up processes of the United Nations Conference on Environment and Development (UNDCED) in Rio de Janeiro in 1992 which was considered the concept of SFM within the framework of the sustainable development of Cambodia (RGC, 2002).

In August 2002, ***Forestry Law*** was promulgated by the King. This new law provides background regulation to mandate the Forestry Administration with the nationwide forest resource management responsibility from the central head quarter through local administration. It was developed in a participatory manner by all forestry interested stakeholders.

In November 2003, the RGC signed the ***Sub-decree on Community Forestry*** which had been developed through a nationwide participatory process to enhance local community participation in forest management decision making processes under the supervision of the community forestry Task Force.

Other relevant laws and regulation in forestry is attached as **Annex 3**.

5.4.4- Rectangular Strategies

Rectangular Strategy
Objectives <ul style="list-style-type: none">• Peace, political stability, and social order;• Integration of Cambodia into the region and the world;• Partnership in development;• Favorable macroeconomic and financial environment.
Good Governance <ol style="list-style-type: none">1- Fighting corruption2- Legal and judicial reform3- Public administration reform4- Armed forces reform and demobilization
Enhancement of Agricultural Sector <ol style="list-style-type: none">1- Improving productivity and diversifying agricultural sector2- Land reform and mines clearance3- Fisheries reform4- Forestry reform
Further Rehabilitation and Construction of Physical Infrastructure <ol style="list-style-type: none">1- Further construction of transport infrastructure2- Management of water resources and irrigation

- 3- Development of the energy sector and electricity network
- 4- Development of information and communication technology

Private Sector Development and Employment Generation

- 1- Strengthening private sector and attracting investments
- 2- Creating jobs and ensuring improved work conditions
- 3- Promoting SMEs
- 4- Ensuring social safety nets

Capacity Building and Human Resource Development

- 1- Enhancing quality of education
- 2- Improving health service
- 3- Fostering gender equity
- 4- Implementing population policy

Within the sub title of forestry reform under this rectangular strategy of the RGC, the main strategy of the government in forestry is to ensure sustainable forest management which adheres to three main pillars as follows:

- Clear forest management policy with strict control of forest logging activities following the international forest management regime;
- Make sure natural resource protection system is in place to conserve bio-diversity and rare species; and
- Enhance the development of community forestry which ensures direct participation from local communities in reforestation.

5.4.5- National Forest Programs

The Royal Government of Cambodia acknowledges international issues, processes and commitments occurring as a result of the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992 and its follow-up processes relevant to the country's forest resources. The Royal Government of Cambodia envisions that a long term National Forest Program (NFP) will be implemented consistent with the framework of the Intergovernmental Panel on Forests/Intergovernmental Forum on Forests promoted by the International Arrangement on Forests with the United Nations Forum on Forests and the Collaborative Partnership on Forests.

Working closely with Development Partners, Donors through the Technical Working Group on Forest and Environment (TWG-F&E), Relevant Government Institutions, Civil Societies, and Private Sector, the Forestry Administration (MAFF) of the RGC has come out its own agenda of the National Forest Program as appear in NFP box below.

These programs are all relevant to the contribution of measures to combat desertification. Among them, the most and direct relevant ones are the Forest Law Enforcement, Forest Management, and the Reforestation Programs. As described in previous chapters of this report, conversion of forest land in to other land uses through forest land clearing and encroachment for ownership are the major causes that forest covers will be disappeared very fast leaving the areas under unprotected status and soil degradation. These adverse activities give the RCG clear messages and enough scenarios for priority setting to protect forests and their ecosystems from environmental degradation.

In addition to the protection measures mentioned above, another priority area to curb forest degradation is reforestation program. The reforestation program support tree planting activities for rehabilitation of degraded forests as well as the expansion of forest cover on bare lands for environmental protection and socio-economic purposes.

Reforestations have been developed under categories of (1) Economy Land Concession (2) Forest land granted for tree planting (3) Community forestry plantation (4) Government own plantations including military activities (5) Individual or private land plantations, and (6) National Arbor-day celebrations with people participation.

Over the last 20 years of its effort, the RGC has successfully achieved its goal of forest rehabilitation on degraded forest lands. As result, the achievement of forest plantation⁹ during 1985-2004, 14,064 ha have been grown with fast growing species such as Acacia and Eucalyptus, the imported species. Participating in forest rehabilitation, the Royal Government Armed Force has been actively involving in forest plantation since 2002. Another 1,052 ha have been planted¹⁰.

National Forest Programs

1- Forest Management Program

Within this program, major part of the natural forests need to be rationalized, reclassified, and dedicated to their ecosystem protection and biological conservation functions. Implement the strict application of Codes of Practice as regulatory framework for sustainable management of forest resources including forest concession.

2- Forest Law Enforcement Program

The program will strengthen the enforcement of forestry law, especially in combating forest land clearing and encroachment, illegal trade and export of timber from Cambodia.

3- Forest Gene Conservation Program

Implement forest gene conservation program by securing support and funding from Donors.

4- National Community Forestry Program

This program will benefit to local populations from using and managing of forest resources to optimize income generation via implementation of forestry and wildlife conservation concept based on the participation of local populations.

5- Overall Capacity Building Program Forestry Sector

The capacity building program will contribute capacity building, institutional strengthening, and program implemented at all levels through the adopted of overall capacity building program for forestry sector.

6- Public Awareness Program

This program will support the Forestry Administration to maintain Forestry web site, web site of TWG-F&E, maintain the ongoing activities of public affair unit and extension program of FA.

7- Reforestation/Afforestation Program

⁹ Cambodia Forestry Statistic 2004

¹⁰ Cambodia Forestry Statistic 2004

The reforestation program will support tree planting for socio-economic purposes and environmental services by multiple stakeholders. The program will support also the development of timber processing for value added products and innovative products promoted.

In order to achieve the national goals in the forestry sector for environmental protection, biodiversity conservation, poverty reduction, economic development, and good governance, the RGC is committed to implement a National Forestry Programs with the following purposes:

- Strengthening of forestry management and conservation to combat illegal logging and encroachment;
- Promoting man-made plantation to substitute for national forest demands by encouraging private investment and public participation;
- Promoting forestry contribution to social and economic development;
- Increasing transparency in forest management by launching of public awareness program;
- Strengthening capacity of local communities and private sectors in resource management.

5.4.6- Community Forestry

Community forestry in Cambodia has been supported strongly by the government and international and local NGOs. The RGC thrive its effort in three main actions namely: (1) develop guidelines for community forestry, (2) develop community forestry program, and (3) develop information system on community forestry.

Cambodia has followed the global trend of favoring various forms of more decentralized forest management. Numerous pilot projects are underway to strengthen the ability of local communities to manage forests. Many of these build upon a long tradition of local forest management by rural Cambodian people. The Forest Policy and Law are supportive of such decentralized forest management. The general trend towards community forest management is to be commended and is consistent with the attainment of SFM as defined by ITTO as well as other international regimes. Community forest management requires different approaches in the different parts of the country and does not provide the solutions to the problems of managing large areas of well-stocked and bio-diverse forests in sparsely populated parts of the country. Given the diversity of conditions in the country the present sub-decree on community forestry is the legal instrument to support implementation of such diversity. The RGC advocates a flexible approach with provision for experimentation and learning and the development of locally adapted community forest regulations to deal with different local situations.

The newly created and democratically elected Community Councils were given stronger roles in community forest management. This would also be consistent with a global trend towards decentralized forest management and is a desirable long-term goal. Currently; there are 274 community forests¹¹ which cover 218,647 ha equivalent to 1.92 % compared to total forest areas.

5.4.7- Forest Gene Conservation

Natural forests cover 62.7% of the total country areas and represent a wealth of types ranging from mangrove, tropical humid evergreen forests to dry and mountainous forests. A high level of bio-diversity of the primary forest is evident. The role of indigenous species is vast. Over

¹¹ Source: Forestry Statistic in Cambodia, 2004 and the Atlas of Cambodia 2006.

centuries, they have provided a range of goods and services essential to rural livelihoods and national economic development.

However, some species have been threatened to extinct especially due to shifting cultivation, logging and forest fires. As these activities continue, genetic resource of some important indigenous species has become endangered and consequently the potential for good seed sources and planting of natural species is deteriorating. To date, the RGC has achieved the following:

- National forest gene conservation strategy, action plan and gene-ecological zoning model have been developed;
- Establishment of a number of indigenous tree seed sources through out the country;
- Successful piloting of participatory approaches for forest gene conservation;
- Extensive trials and demonstrations of indigenous species;
- Development of recommendations for a policy and legislative framework for the tree seed sector;
- Extension activities to raise awareness of the important of using good genetic and physiological seed.

In line with the national development objectives, Forest Gene Conservation Program aims to contribute simultaneously to poverty reduction and sustainable forest management.

5.4.8- Reforestation

Rehabilitation and restoration of degraded lands and promotion of natural and planted forests are the main goals of the RGC in forest resource development. With reference to the statement of the national forest sector policy, the RGC has committed strongly to continue support reforestation on arable land and to protect those trees for the development of forest resources. Tree plantations are actively and systematically organized by the government in several sub-programs as follows:

- Enrichment plantation from which the natural forest resources are managed and planted with high value commercial indigenous species in strips or in stands by government institutions, private sector, local communities etc.;
- Forest rehabilitation on degraded forest lands by protecting degraded forests from further harvesting or clearing to allow coppicing from natural stems and re-growing naturally to gain back canopies of natural stands;
- Clearing degraded forest lands for homogenous growing especially the fast growing species generally imported ones to meet demand of local consumption and for export. This sub-program are the most familiar and worldwide practice in Cambodia by not only government institutions but also from private sector;
- Planting tree on grass land or abandon shifting agricultural land to expand the forest cover;
- Planting tree in the public areas such as along roads, river banks, canals, pagoda, schools, and parks;
- Tree planting by Arbor-day celebrations which are organized every year by central government as well as provincial governors;
- Tree planting by military.

According to TWG-F&E Work Plan 2006, 10,000 ha of forest degraded lands were planned to be planted every year for socio-economic purposes and environmental services. Budget for this work plan are expected from donors, government, and private sector.

With reference to article 61 of forestry law which stipulated that “the planting of tree within the state forestland could be done directly by government institutions, community forestry, or by participation of people through a granted right to use state forest land”.

Currently, the RGC is developing a Sub-decree to rule granting rights for the use of state forestland to plant trees. This Sub-decree shall take into account the potential social and environmental impact of the selected species to be planted. It will promote the creation of new forest resources through plantations and recognizing the stakeholders’ role in rehabilitation of degraded lands and forests in environmentally critical areas.

The RGC through its FA has conducted reforestation program according to the government budget which support to about 1,000 ha per year. In addition the Arbor-day (tree planting ceremony) which organized once a year has put about 1,300,000 trees to the reforestation program. A number of forestry plots have been established to maintain the endangered species.

With support from the Royal Danish Government, the Cambodia Tree Seed Project has been implemented and support to FA on the seed sources of important indigenous tree species. The aim of the project is to provide seeds with appropriate genetics and quality obtained from seed sources that are collected from the best quality of the mother trees in order to meet the requirement of reforestation activities in Cambodia. The project is also aims at building capacity at the national level.

Many rural communities depend on forest resources for their daily livelihoods. These communities often have long traditions of sustainable forest resource use and a wealth of knowledge and skill regarding forest resources and management. Demand for forest products is increasing as the largely rural population continues to grow rapidly. Urbanization is also increasing rapidly which increases the demand both for charcoal and for other wood products such as furniture and construction material.

Non-timber forest products will remain an important safety net for the rural poor. From experience elsewhere it is probable that the international demand for them will increase as access improves and knowledge of what is available also increases (IFSR, 2004)

5.4.9- Production Forest Management

According to Cambodian forestry management history, during a period from 1980 through 1990 forest management regime was under the state management enterprise. The government entity (DFW) played the role as logger, trader/exporter and self-monitoring enterprise. In those days, logging under bilateral cooperation between Cambodia-Viet Nam, Cambodia-Laos and logging under local coupe bidding are the most common practices.

In 1993, the first mandate RGC appealed the international companies to invest in Cambodia. Forestry was one of the most interested fields to be invested at that time. Responding to that appeal, a lot of investments with heavy machinery were made into Cambodia especially in the field of forestry. Since then, the forest concession management system was introduced into Cambodia despite it was a complete new system that Cambodia had no experience and legal instruments to manage its own resource in advance. There were 37 concessions approximately 6,875,498 ha of forest granted by the government to private sector to be managed under the forest concession management. After more than six years of operation, 21 concession agreements equivalent to 3,501,170 ha of forest areas were cancelled due to incompetent capacity in forest resource management and due to not enough economy viable resource to continue their operations. A lot of timber product varieties have been produced and exported under the control and monitoring of FA/MAFF. At the same time due to insufficient laws and regulation to control the

forest concession operation, and due to political unrest and insecurity in the country, there were also a lot of illegal activities happened on the ground.

In 2001, in order to stop those illegal cutting and trading to neighboring countries, the RGC in collaboration with the World Bank have launched a logging moratorium so that to give times for all remained concessionaires to prepare their three levels of forest concession management plans to be submitted to FA/MAFF and the WB for approval. This kind of processes was conducted under the direct support of the Forest Concession Management and Control Pilot Project (FCMCP) which was supported by a 5 million US dollar loan from the Bank under the learning and innovation loan category (LIL).

Since 2000, forest logging activities and the contribution of income from forest sector into government treasury are plunged sharply from approximately 11 million US dollars in 2000 to only US\$1,447,319.00 in 2005.

In January 2002, there are 14 concessions that start their Strategic Forest Management Plan (SFMP) preparation. Among these concessions, upon implementation of the government under the World Bank forest concession management project the concessionaires submitted SFMP for the first round evaluation. The evaluation process of SFMP was conducted by the Technical Review Team (TRT). As a result, 2 concessions were canceled. At the second round evaluation, only SFMP from 9 concessions were submitted for review. Those SFMPs were prepared to respond to guidelines for preparation of SFMP & ESIA, 3 of them were evaluated low rate while the other 6 have been considered acceptable. Among these 6, with WB supported the GFA in 2004 conducted review in detailed of 2 concessions and the rest of 4 concessions were reviewed in 2005. By now, there is not any concessionaire have received approval for the next level of planning yet. It is obviously that the big scale logging operation by concessionaires are unlikely to positively moving forward.

While logging operation under forest concession management system is still pending due to a strict technical requirement and control, sources of timber supply for local consumption could be obtained from the followings:

- Local coupe bidding, by September 2006 there are 4 (four) local coupe bidding management plans are being prepared by local forestry administrations for 2006-2007 logging operation and there is 1 (one) is under logging operation;
- Land economy concessions where timber could be obtained from both natural forests and plantations;
- Private forest plantation;
- Community forestry forests and plantations;
- The state (FA) management plantations;
- Family home gardens;
- Confiscated timbers from illegal sources.

5.4.10- Forest Law Enforcement

To response to the commitment to elimination of illegal logging and illegal trade of forest product, the RGC has adopted the following mechanism:

In June and July 2004, *National Committee to Curb, Eliminate and Subdue Slash and Burn Clear of Forests for Land Reclamation and Ownership* and *Provincial Sub-committee to Curb, Eliminate and Subdue Slash and Burn Clear of Forests for Land Reclamation and Ownership* were established respectively. The National Committee and Provincial Sub-committee were created for purpose to Curb, Eliminate and Subdue Slash and Burn Clear of Forests for Land

Reclamation and Ownership which occurred in a certain provinces. The Minister of Agriculture Forestry and Fisheries is chair of the National Committee other Secretary and Under Secretary of State from other relevant Ministries and organizations are deputies and members. Under the provincial sub-committee, each provincial governor is the chair.

In March 2006 Sub-decree on Designation of Member of National Authority on Land Conflict Resolution was adopted. Within this Sub-decree, one of the Vice Prime Ministers was assigned to chair this authority. Senior Ministers, Royal Government Advisors, Member of Parliament, advisor to the Prime Minister, and other relevant head or deputy head of government institutions are the members.

In May 2006 the RGC issued order number 1 BB on curbing of slash and burn of state forests and forest land encroachment for ownership. The objectives are to protect and strictly strengthen the management of forest lands from clearing of forest for ownership. This order has instructed provincial governors to put into force measures as follows:

1. Make use of state power to urgently declare nullify and confiscated all kinds of forest lands that have been encroached illegally latest by 31 May 2006;
2. This nullified or confiscated declaration must give time 30 days for clarification and reclamation that may have. Upon on reclamation within this period, the provincial governors are obligated to report to the *National Authority on Land Conflict Resolution* and to the *National Committee to Curb, Eliminate and Subdue Slash and Burn Clear of Forests for Land Reclamation and Ownership* in order to set aside as permanent forestry estate;
3. Strongly strengthen existing law enforcement related to all kinds of forest lands, especially on criminal charge to who grab forest land for ownership;
4. All relevant institutions, general head quarter of the Royal Armed Force, Military Police, General Head Quarter of National Police, and all levels of Authorities must implement this Order responsively and effectively and report result to *National Authority on Land Conflict Resolution* and to the *National Committee to Curb, Eliminate and Subdue Slash and Burn Clear of Forests for Land Reclamation and Ownership* in accordance to each actual case after this date of signature.

In July 2006, Sub-decree on Management and Implementation of General Head Quarter of National Authority on Land Conflict Resolution was adopted. This Sub-decree was developed to identify mission, authority, function, and structure of the general head quarter of the National Authority on Land Conflict Resolution was adopted.

5.5 Natural Resources Management

5.5.1 Conservation

Natural resources conservation, particularly of biodiversity and endangered species of wildlife, are priority concerns of the FA and the MAFF. This interest is reflected in the Central Cardamom Conservation Program and the Wildlife Conservation Program.

A National Biodiversity Action Plan has been adopted and a National Biodiversity Steering Committee has been set up. Wildlife population has shown evidence of increase in some areas. To adequately respond to the urgent needs of climate change, in particular droughts and floods, a draft National Adaptation Program of Action to Climate Change has been prepared, containing priority actions needed to adapt to climate change in regard to agriculture, water resource management, coastal zone management and human health.

Environment and conservation are accorded high priority in Royal Government of Cambodia's efforts for sustainable development to benefit social and economic development of concerned communities. A draft law on Protection Areas is before the National Assembly. This law provides for procedures, guidelines, and regulatory tools for the administration and management of protected area, protection of rights and traditions of ethnic minorities and creation of protected area communities to seek their participation in the sustainable management and use of natural resources, and use National Biodiversity Steering Committee has been set up.

To adequately respond to the urgent needs of climate change, in particular droughts and floods, a draft National Adaptation Program of Action to Climate Change has been prepared containing priority actions needed to adapt to climate change in regard to agriculture, water resource management, coastal zone management and human health.

There are 23 protected areas established under law. Work on producing maps and demarcation of boundaries of 11 protected areas has been completed, boundary poles as markers have been erected and 110 km of roads within protected areas have been rehabilitated. Concerted efforts are being made to protect and conserve critical ecosystems such as the Cardamom Mountain Protected area, three core areas of the Tonle Sap Biosphere Reserve and others. Community engagement in bio-diversity conservation and livelihood development is being promoted in conservation projects, especially through establishment of 69 community-protected areas. A National Committee for Coastal Management has been set up to promote the involvement of provincial authorities and commune councils in coastal management. 30 coastal community-based organizations have been established, 54 ha of mangroves have been replanted and several mangrove species have been identified.

Water resources form a crucial component of the nation's environment and natural resource base. Cambodia's watercourses - especially those of the Tonle Sap system -- provide the basis for fisheries, irrigated agricultural production, domestic and industrial water supply, hydro-electric potential, and navigation. Even with abundant fresh water resources -- rivers, streams, lakes, and aquifers -- parts of Cambodia suffer from droughts affecting and destroying crops. Construction and improvement of irrigation facilities, flood protection dykes and sea protection dykes are therefore an important priority. Also, Cambodia's water resources are vulnerable to activities in other countries upstream of the Mekong River. A National Policy on Water Resources Management was adopted in January 2004 and a draft Law on Water Resources Management is being considered by the National Assembly. In the past five years (2001-2005), the achievements have been: 315 irrigation systems for rice cultivation covering an area of 153,149 ha; flood control dykes that provide protection for an area of 113,500 ha; prevention dykes protecting 16,680 ha of cultivable land from sea water intrusion.

Community engagement in bio-diversity conservation and livelihood development is being promoted in conservation projects, especially through establishment of 69 community-protected areas. A National Committee for Coastal Management has been set up to promote the involvement of provincial authorities and communes councils in coastal management. 30 coastal community-based organizations have been established, 54 hectares of mangroves have been replanted and several mangrove species have been identified.

A National Policy on Water Resources Management was adopted in January 2004 and draft law on Water Resources Management is being considered by the National Assembly.

5.5.2 Natural Resources and Environment Management

Cambodia has a population more than 13 million (estimated 2005) of which 84% live in rural areas. The country covers an area of 181, 035 km² and features coastline of 435 km and border of 2,438 km. Ninety percent of the population depends directly on natural resources for their livelihoods, based on agriculture, fisheries and forestry.

Water is a dominant feature of Cambodia, with 86 % of its landmass within the catchments of the Mekong River including the great Tonle Sap Lake which increases its size by four times from 250,000 ha to 1,000,000 ha in wet season contributing to the network of wetlands which occupy up to 30 % of the country. The Tonle Sap is one of the largest floodplain lakes and one of the most productive inland fisheries in the world and plays an important role in the economic, social and cultural life of Cambodians. However estimates are that 7 million Cambodians live without access to safe drinking water Freshwater fisheries are the fourth largest annual catch in the world and estimated to be between 230,000 – 400,000 tones per annum, contributing to 75 % of protein consumed by Cambodians, which amounts to some 30 – 40 kg per person per year. Estimates are that between one and three million people depend directly on Tonle Sap fisheries for livelihoods.

Cambodia's coastal zone supports diverse habitats including mangrove forests, coral reefs, and sea grass beds. It is understood that Cambodia's marine habitats support 435 species of fish and globally endangered marine mammals such as dugong and marine dolphin. Almost 80 % of the agricultural land is cultivated by local varieties of rice, maize, sesame, vegetables and sweet potato. However rice is the dominant crop and over 2000 varieties are known to exist. Agriculture is the most important economic sector in the country, accounting for 39 percent of GDP and employing 70 percent of the labor force. However farm productivity in the country is the lowest in all of Southeast Asia and rice output in Cambodia is enough to feed the average family for only seven months a year.

The country has a significant protected area network following a Royal Decree issued by the His Majesty of the King in 1993, designating 23 protected areas covering 3.3 million ha (18.23 % of the total land in the country).

Cambodia is similar to many developing nations in that most of the population is dependant for its livelihood on natural resources, directly or indirectly. Many rural families depend on gathering of natural resources from state land (common property) and off-farm employment where available, to make up the shortfall required for survival. This creates a situation where the poor tend to be most dependants on natural resources and therefore are most affected when access to natural resources is changed or the condition of the resource degrades. The direct link between livelihoods and access to natural resources increases the vulnerability of the poor to environmental hazards, land and natural resource related conflict and to degradation of environmental condition, while at the same time, unsustainable use of natural resources undermines the basis of living. Gender is a key aspect of the link between poverty and NREM. In particular women play a significant role in food production and collection of natural resources such as firewood and water and are also more vulnerable to changes in the environment due to social and economic roles.

The Cambodian National Poverty Reduction Strategy recognizes a strong correlation between sound natural resource and environment management and poverty reduction. It requires “poverty reduction through high sustainable economic growth over the long term by ensuring environmental sustainability and social equity”. Four keys strategies are outlined for reducing poverty and improving natural resource and environment management, namely: increasing alternative livelihoods in order to decrease exploitation of natural resources, strengthening

capacity of communities to manage natural resources; institutional capacity building, and finally, recognition of the importance of an integrated/cross-sectoral approach to environmental planning.

The Government clearly recognizes the need for effective environmental protection and natural resources management as indicated by the passing of the following environmental laws and decrees:

- 1993 Royal Decree on the Creation and Designation of Protected Areas.
- 1996 Law on the Establishment of the Ministry of Environment.
- 1996 Law on Environmental Protection and Natural Resource Management.
- 1997 Sub Decree on Organization and Functions of the Ministry of Environment.
- 1999 Sub Decree on Environmental Impact Assessment Process.
- 1999 Sub Decree on Water Pollution Control
- 2000 Sub Decree on Organization and function of the Ministry of Agriculture, Forestry and Fisheries
- 2002 Forestry Law
- 2005 Fisheries Law

The Ministry of Environment was established in 1996 and was given a broad mandate to manage, conserve and protect Cambodia's environment and natural resources in an ecologically sustainable manner that will assist in alleviating poverty throughout the nation.

A National Environmental Action Plan (NEAP) 1996-2002, which was prepared in a participatory manner, identified a first phase of consolidation of the National policy and regulatory framework and a second phase focusing on the implementation of investments needed to improve environmental management. The NEAP focuses on six key areas: forestry, b) fisheries and floodplain agriculture in the Tonle Sap region, c) coastal fisheries, d) biodiversity and protected areas, e) energy development and environment and f) urban waste management. The Ministry of Environment's environment program for 2003 lists the preparation of a new National Environment Plan for 2003 – 2008 as a key task.

Although no direct opposition to the new environmental laws and regulations has been noted in Cambodia, there are reservations about the feasibility of its enforcement considering the current context of wide-ranging poverty in rural areas and limitations of the public institutions in charge of its implementation. Owing to cooperation between government and donor agencies, various NGOs and International Organizations (IOs) have been able to successfully pilot community-based approaches to natural resource management; a modality that combines the objective of environmental sustainability and poverty alleviation. This component offers an opportunity to continue to link NREM mainstreaming with governance and poverty alleviation.

Another manifestation of the importance attached by the Government to natural resource and environment management occurred during the formulation of the Seila NREM Mainstreaming Strategy when an inter-disciplinary, technical working group consisting of senior technical representatives from the Ministries of Environment, Agriculture, Land Management, Interior, Water Resources and the Departments of Forestry and Fisheries was established at the national level. The vision for the Seila NREM strategy is that: Natural Resources and environment management issues are fully mainstreamed in governance management structures and systems at the national, provincial and commune council levels. The Mainstreaming NREM project recognizes that improved local governance is essential for securing sustainable use of resources.

5.6 National development plan on land use

The year of 2005 is the second year of the third mandate of Royal Government of Cambodia. The Royal Government of Kingdom of Cambodia, the country has been greatly developed with obtaining a great successfulness and comprehensive achievements in implementation of the internal & external policies towards contributing to the socio-economic development and also poverty reduction.

The National Strategic Development Plan (2006-2010), has been formulated using the comprehensive Rectangular Strategy of the Royal Government of Cambodia and synthesizes various policy documents (Cambodia Millennium Development Goals, National Poverty Reduction Strategy, National Population Policy, etc) and through extensive consultations were also held among all stakeholders. It provides the framework and compass for growth, employment, equity, and efficiency to reach CMDGs and well-focused and directed future equitable development, pro poor and pro-rural. It will take the country on an assured growth path, at once sustainable. It lays out the vision, goals, strategies and priority actions for the next five years. It makes balanced, realistic and feasible allocations to various sectors on a priority basis. Its implementation will be closely and regularly monitored to make annual adjustments.

Moreover, the internal security is considerably characterized stability with better law enforcement & social order in democratic frameworks. The stability of the macro-economics is considered to be strengthened and the economic activities by sub-sectors are also gradually progressed from year to year with better competition. The economic growth is expected to be around 7% in 2005 which is considered as high growth rate if compared to previous period and this growth is certainly derived from the huge part of the contribution of agriculture sector. The strengthening of cooperation between the Government, international communities and the private sector has been strongly made to solve the problems encountered and together coordinate in the formulation of the action plan as well as to review the effective implementation of those development programs.

The National Poverty Reduction Strategy (2003-2005) recognizes the three aspects of land management vision including (1) land will be administered in a way which makes property rights legally clear and secure, (2) concessions for social purposes will be made to distribute vacant State's land to socially needy households, and (3) land will be managed in an environmentally sustainable way, which provides the poor with the opportunities for secure access to natural resources (especially land), to secure housing, to credit, and to employment, and for investment.

The objectives of the land management policy are to ensure that land and natural resources are used in an efficient manner in order to support sustainable and equitable socio-economic development. Specific elements of land management being implemented to achieve these objectives are: coordination of land use planning with socio-economic development plans and natural resources management, decentralization of land management and planning authority, development of land use plans for priority areas, implementation of procedures for urban land management; creation of housing policy, informal settlement upgrading and adoption of resettlement policy.

The agriculture sector's goal of the RGC in the NPRS is to maximize food self-sufficiency of the rural households through improving performance of agriculture and increasing agricultural productivity, and to ensure sustainable natural resources management and conservation leading to increased food security and income generation. In order to achieve this goal and contribute to poverty reduction of the rural households, the strategic objectives for agriculture sector are to: (1) ensure an adequate legal framework and institutional environment; (2) strengthen capacity and improve knowledge system within the Government, stakeholders, and especially small-scale

farmers; (3) promote intensification, diversification and security of agricultural production; (4) promote sustainable natural resources management and conservation; and (5) promote agricultural product processing and investment in agro-industries and strengthen agricultural marketing system and market access.

Sustainable Natural Resources Management and Conservation has become an integral part of RGC's strategy for sustainable economic growth and development. Implementation of community based fishery, forestry and PAs contributes to ensure sustainable practice by local community to sustain their livelihood and to contribute to poverty reduction.

5.6.1 Land Management and Land Law

Land is the most important productive asset in Cambodia. Inadequate security of land tenure due to land disputes; land confiscation, land mine contamination and rapid decline in natural resources are the prime reasons that limit people to use resources effectively to meet their needs. The prime causes of land disputes are lack of land records, public ignorance, weak legal framework, widespread informal possession of land, communal claims, issues of commercial concessions and corrupt practices. The result is the lack of livelihood opportunities, low capacities and social exclusion, which all contribute to poverty.

Under the Pol Pot regime (1975-79), not only were private property rights completely destroyed but all records, including cadastral maps and titles, were also destroyed. In 1989, the government reintroduced private property rights, with ownership rights issued for residential land with an upper size limit of 2,000 sq. meters, possession rights for cultivated land less than 5 ha, and concession rights for plantation land greater than 5 ha.

During the 1990s, titles for land ownership on private land were issued mainly in Phnom Penh, but for only about 25% of the land. The 1992 Land Law did not allow land ownership in rural areas, only possessor rights. Following the enactment of the 1992 Land Law, a program was initiated to call for applications for land tenure certificates to confirm occupancy and use rights. Apparently more than 4 million applications were submitted, but there has not been until recently a capacity to process applications.

The new Ministry of Land Management, Urban Planning and Construction is the government agency with primary responsibility for land management, including policy and coordination of land registration and administration, land use planning, geodetic and cadastral surveying, mapping and property valuation. Actual implementation of land registration, administration of land transactions, collection of land taxes and land use planning are carried out by the Provincial and Municipal offices of the MLMUPC. The Ministry of Agriculture, Forestry and Fisheries has responsibility for the management of forested land and wetlands, except those in protected areas, which are under the mandate of the Ministry of Environment.

According to the 1992 Land Law, public land is divided into two categories, 'state public land' and 'state private land'. The former cannot be sold or used to create any private land rights, but the latter can be sold and is reported to be frequently sold by ministries and state agencies in an ad-hoc manner, with the proceeds often not returning to the Treasury for public benefit.

It is overwhelmingly clear to both government and donors that the problem with the greatest contribution to poverty is lack of land tenure security (and the associated landlessness) and restricted access to common property resources. Symptoms of the problem are clear from the rising number of landless people due to forced or distressed sales and the high number of land disputes clogging the judicial and other institutions for resolving land conflicts.

Since 1999 Cambodia has enjoyed peace and stability for the first time in 30 years. Democracy is taking root. The economy has been growing steadily, at an average annual rate of about 5-9 percent per year. However, unclear rules governing rights to land threaten both political stability and economic development. Conflicts over land are growing; increasingly involve people or entities from outside the community seeking land for commercial purposes. The poor, illiterate and less well educated lose in the process because they do not have the access to human capital, money and power needed to defend their rights. As a result, land is becoming progressively more concentrated in the hands of people or entities who are politically well connected or can afford informal payments, especially in regions with potential for tourism, logging, industrial or urban development.

Conflicts over land are high in Cambodia for several reasons. Chief among them is uncertainty about where boundaries of land under the control of various state entities or private individuals lie. This in turn is the result of unclear policies and regulations about how land should be classified and lack of high quality maps that can allow boundaries to be precisely demarcated. This has led to competing claims for the same piece of land. In some cases the claims are between different government ministries. In others they are between farmers who have settled on the land and government agencies that allocate the land as concessions to commercial interests. In still other cases the disputes are between private individuals.

5.6.2 Land Policy

The Government has recognized the need to address land issues since late 1989. It enacted the 1992

Land Law and asked for donor support to issue land titles in 1995. In 1999, with improved decision making, the government moved quickly to address the land issues by: (i) establishing in late 1999 the Ministry of Land Management, Urban Planning and Construction; (ii) requesting during the CG meeting of 2000 donor support in addressing land issues; (iii) establishing in late 2000 a Council of Land Policy chaired by the minister of the MLMUPC, and comprising of senior officials from 17 ministries and institutions, including ministries of environment; agriculture, forestry and fisheries; rural development; interior; economics and finance; and defense; (iv) causing the Council of Ministers to approve in May 2001 a "Statement on Land Policy" outlining the direction of government policies in the land sector, and (v) having the national assembly and the senate pass a draft new land law which was signed into law on August 30, 2001.

The government's strategy, expressed in its "Statement on Land Policy", articulates government policy on land management, administration and distribution. It calls for the creation of a state land inventory and classification system; increasing capacity to resolve disputes; registering all land in the nation (both public and private) over the long-term using both systematic and sporadic procedures; strengthening land tenure security and preventing or speedily resolving land disputes; developing land use plans for priority areas (including areas with potential for tourism, industrial investment, urban areas and major road corridors); improving management of natural resources; and developing procedures for urban land management. The government recognizes that implementing the strategy will be a long-term process requiring broad public consultation and consensus building. It will also require clarifying roles of various government agencies involved with land management, developing mechanisms for improving coordination among them. It will also involve the creation of accurate geodetic networks, maps and land information systems.

The Interim Land Policy Framework recognizes that for land policy to meet the needs of all Cambodians, it must be responsive to the needs of women. One main principal of such responsiveness is that land titling will continue to be available as joint ownership between husband and wife. Furthermore, the principle will be emphasized that women should be

represented in the various commissions and committees, such as the Cadastral Commission and in PLUP procedures.

5.6.3 Land Law and Related Rules and Regulation

The Land Law, and subsequently passed legislation, creates additional opportunities for commune councils' involvement in participatory land use/NREM planning activities by clarifying issues related to State public and State private property, the designation of communal property that is managed and ultimately owned by indigenous communities, economic and social land concessions, procedures for creation of cadastral maps and land registers, and land dispute resolution. While all of these issues can be worked into the commune development planning process, certain areas mandate direct involvement of commune councils.

Commune councils have a direct role to play in the areas of land conflict resolution procedures, creation of cadastral maps and land registries (both systematic and sporadic), and social land concessions. The provisions for social land concession planning is of critical importance, as commune councils initiate the process at the local level, and the process directly mirrors that of the commune development planning process, therefore creating the opportunity to integrate the two together. It is hoped that the rules and regulations related to economic land concessions (industrial agricultural exploitation) will create a similar role, thereby further enhancing the ability of commune councils to be actively involved in land use/NREM planning activities.

5.6.4 Land Use Planning and NREM

The Law on the Administration and Management of the Commune, and subsequent regulations there under, create a clear and undisputable opportunity for commune council's involvement in participatory land use/NREM activities, with the commune development planning process being the cornerstone for this opportunity. The rules and regulations for creating, implementing, evaluating through the preparation of annual reports and subsequent modification of the development plans creates a clear structure that can be followed for truly dynamic and useful participatory land

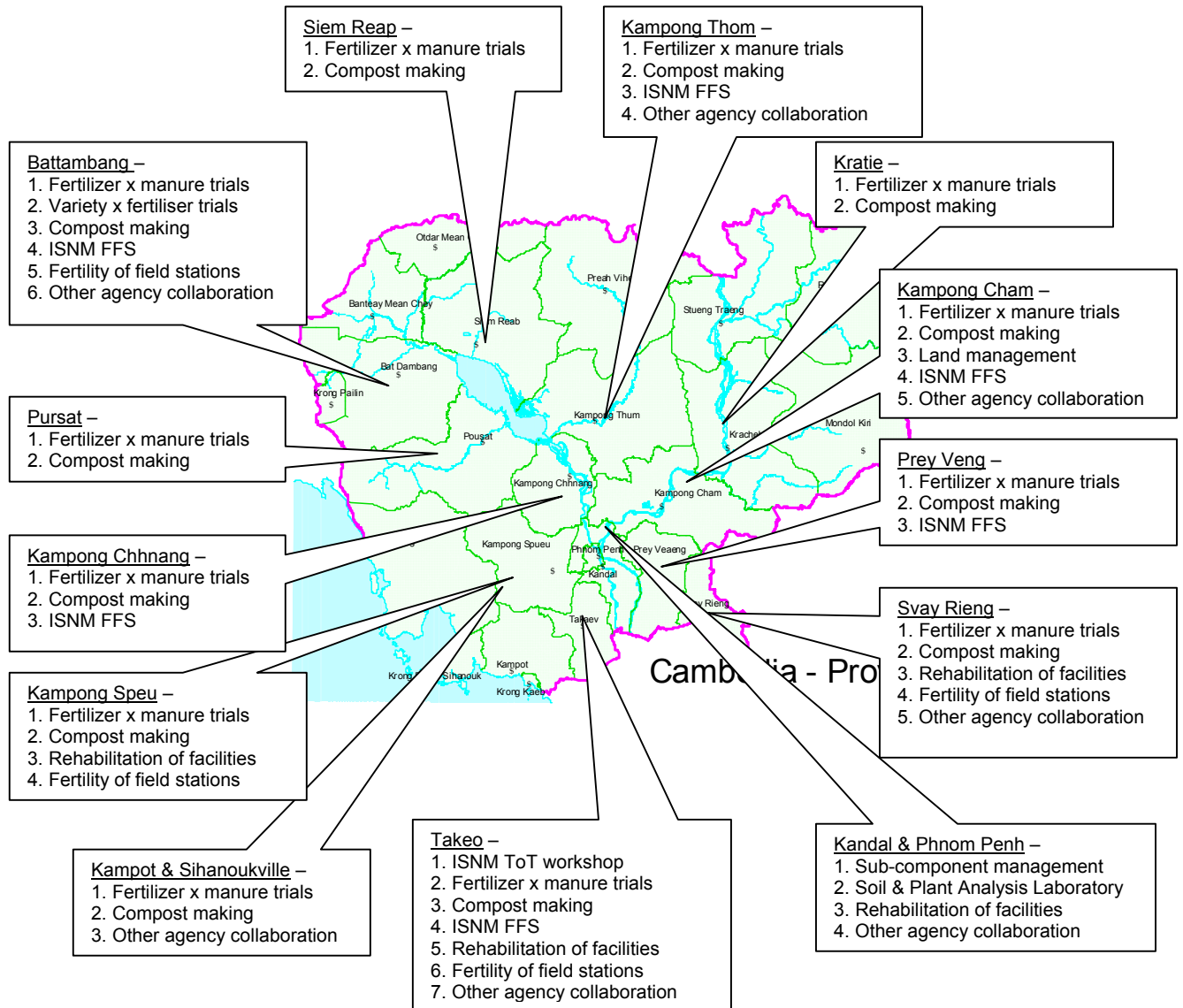
Use/NREM planning activities at the commune and village level if properly implemented. The fact that these rules and regulations contain very strong provisions related to the active involvement of commune residents, civil society and interested stakeholders throughout the commune development planning process supports this conclusion.

In addition to the above, commune councils have been granted legislative authority, which could be used by the commune councils to pass rules related to land use/NREM planning activities. The communes also have been granted a number of financing mechanisms for development activities, such as the commune fund, which ensures that monies will be available for implementation activities; unfortunately many of the funding mechanisms still need to be fully developed before their full potential for financing land use/NREM planning activities can be fully recognized.

The developments in decentralization and deconcentration are an opportunity to re-define the roles of the national, provincial, district and commune level authorities that devolves power to decide on land use planning and NREM issues at the commune level with support from the higher levels to implement the community development plans. The Government has also stressed the adoption of a consultative process to determine the land distribution for the poor and prevent illegal land acquisition and land concentration.

5.7 Soil fertility management and conservation

Activity by Province in Year 2000-2005



Department of Agronomy and Agricultural Land Improvement (DAALI) is a department under MAFF which play the primary role is to deal with all matters to do with plants in agricultural production and plant cover in agricultural land management and improvement. It will be a public repository of knowledge and information on these matters.

DAALI's mission is to provide technical and regulatory services to the agricultural sector in Cambodia to improve food security and rural livelihoods in a manner which takes into account social equity, economic viability and ecological sustainability. With this regard, The improvement of soil fertility is very important for sustainability practices in agriculture with sound environment.

This report covers the activities and achievements of the Soil improvement through building capacity among staff from the technical Office (now Land Management Office) of DAALI

through (1) management and networking, (2) Soil fertility management and conservation field activities, (3) institutional strengthening and extension, and (4) rehabilitation of field stations and facilities.

Goal:

Development of National Soil Fertility Management and conservation Strategy for the management of agricultural lands for sustainable production and food security in Cambodia.

Purpose:

Integrated and co-ordinate the activities of CIAP, CARDI, FAO and other projects to meet national goals, and develop expertise in sustainable land management through effective programs in soil fertility management and conservation.

Output:

- 1) Improved knowledge and understanding of soil fertility management and conservation among MAFF, farmers and other stakeholders
- 2) Further development of fertilizer guidelines for rice and other crops and development of integrated soil nutrient management (ISNM) protocols for general application.
- 3) Increased awareness among stakeholders, including decision-makers, farmers, traders and extension workers of sustainable land management (SLM) through sound soil fertility management and conservation practices.
- 4) Further development of a professionally trained staff able to implement policies and undertake activities to improve and maintain soil fertility through sound management and conservation practice.
- 5) A review of capacity of DAALI facilities to support soil fertility management and conservation activities with recommendation for rehabilitation where necessary.

5.8 Strengthen linkage with other soil fertility and land management programs

With many interest groups working in soil fertility and land use management in Cambodia, DAALI is well positioned to facilitate networking to improve linkages and increase awareness amongst these groups.

- a. Within MAFF: CARDI and its Integrated Nutrient Management (INM), Integrated Pest Management (IPM) and Farming Systems programs, and linked International Rice Research Institute (IRRI) and Australian Centre for International Agricultural Research (ACIAR) programs, DAE, BAMs and CAAEP, DAALI and the Land Use Management Office (LUMO), CIAP, and Danish International Development Assistance (DANIDA) IPM projects, Direction Generale des Plantations d'Heveas (DGPH) and Agence Francaise de Developpement (AFD) Cellule Project, and School of Agriculture Prek Leap (SAPL) and the Agricultural Development Denmark Asia (ADDA) Agricultural Education Program.
- b. Within APIP: Agricultural Education and Training Component (AET), Agricultural Hydraulics Component, Seed Production and IPM Sub-Components of APIP-Agronomy, and Smallholder Rubber Research Component (SRRC).

- c. Other ministries, agencies and projects: Asian Development Bank (ADB), AusAID Agricultural Quality Improvement Project (AQIP), Cambodian Development and Research Institute (CDRI), Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), FAO and its Special Programme for Food Security (SPFS) and Women in Irrigation and Nutrition (WIN) program, Groupe de Recherche et D'Echanges Technologiques (GRET), Maharishi Vedic University, Prey Veng, Mekong River Commission (MRC), Ministry of Rural Development (MRD), MOWRAM, Programme de Rehabilitation et d'Appui au Secteur Agricole du Cambodge (PRASAC), and University of Tropical Agriculture (UTA), Royal University of Cambodia (RUA).
- d. NGOs and other agencies: Associazione per la Partecipazione allo Sviluppo (APS, an Italian NGO), Cambodian Society of Agriculture (CSA), Catholic Relief Services (CRS), and Compagnie Centrale des Matériels Agricoles (COCMA, now Agricultural Input Company).

5.9 Policy and rural development

Rural development is a major crosscutting issue, covering health, education, agriculture, water, sanitation and others sectors. It is central to poverty reduction since 85% of the people live in rural areas, which have high poverty incidence. RGC have adopted a multi-pronged approach to foster rural development and empower local communities to plan and manage development of their communities. The decentralization and deconcentration of public services delivery support for participatory decentralized, area-based programs, and the provision of credit to households and small businesses are some of the highlights of these efforts.

For the agricultural sector, the Royal Government of Cambodia has clearly determined the development objective in accordance with the national development framework "Achieve and ensure food security and conserve natural resources". In order to achieve this development objective, the Royal Government of Cambodia set policies for agricultural development as follows:

- To continue to implement the agricultural water policy;
- To expand the irrigated areas from 16.62 % to 20%;
- To expand cultivated areas;
- To ensure safety of land occupation and land utilization, and prevent the illegal and violent land occupation;
- To increase private sector development and investment programs;
- To promote the establishment of rural finance for providing the appropriate credit to farmers in buying agricultural materials;
- To direct the public investment by using foreign aid and private investment toward agricultural sector;
- To strengthen the extension work, natural resources utilization and management, and agricultural technique to meet the requirement of domestic market and exportation;
- To strengthen the controlling for sustainable utilization of fishery resources and increase the encouragement of investment in agro-industry, animal husbandry and fish raising;
- To speed up the privatization of rubber plantations and assist private investment companies to invest in large-scale rubber production;
- To encourage the small holder rubber plantation;
- To promote the forestry policies application and laws on forest management;
- To promote the planting of fast growing and higher yield trees for utilization as fuel wood and charcoal;

- To stop and eliminate all illegal fishing activities including the prohibited fishing gears;
- To stop and use the strict countermeasures for people who named for the foreign fishing boats to exploit the fishery resources;
- To cooperate with the local authorities and the other competent bodies to stop and prevent the illegal activities, which affecting to fisheries domain, socio-economics and environment;
- To strengthen the inspection through administrative penalty including cease of employment and punishment.

Poverty in Cambodia is primarily a rural phenomenon. The overwhelming majority of the poor get their livelihood from agriculture, and the incidence of poverty is also much among farmers than among the occupation groups. Approximately 84 percent of the population, and 90 percent of the poor, live in rural areas, and agricultural activities are their main source of income. At the same time, agriculture provides over 40 percent of the GDP. Therefore, the Government's policies and strategies for development the economy and poverty reduction demands a much stronger focus on agricultural development, which is the effective way to create more employment. But more crop, livestock, fisheries and forestry production will only lift people out of poverty if specific measures are taken to protect and assist the poor. The government's food security policy emphasizes sustained growth in farm production, processing and marketing activity. The main elements of this policy are:

- (1) Technology Development, which includes dissemination of information to help farmers adopts improved farms technologies and apply new techniques in the management of soil, and natural vegetation;
- (2) Ensuring availability of quality inputs at fair market prices via a competitive private sector-dominated supply and distribution system;
- (3) Ensuring availability of financial services (lending and saving) at market interest rates to farmers;
- (4) Creation of a positive policy environment that encourages private sector investment;
- (5) Provision of needed infrastructure such water supply systems for rural communities, and irrigation and flood control systems;
- (6) Provision of agricultural extension services; and
- (7) Establishment of production zoning.

The policy objectives of the Cambodian rural development is seek to improve access to rural infrastructure, particularly rural transportation and water supply, to improve access to rural finance and credit schemes, promote sustainable natural resource management and stimulate rural commodity development through realizing the RGC's policies on governance, implemented through the decentralization and deconcentration of government functions. To materialize these policy objectives the Ministry of Rural Development has set up the following policies:

- Promote the decentralization of planning and implement rural development projects and programs;
- Facilitate an integrated rural development approach which participatory; area based and multi-sectoral;
- Provide a forum at each administrative level for dialogue and joint actions both among government departments and between the RGC and civil society, and the balance between the vertical line ministries and the local authorities; and

Define, utilize and mobilize the comparative advantages and appropriate capacities within the government, civil society, private sector, international and local agencies and rural communities themselves for development purposes.

5.10 The involvement of the international communities

5.10.1 Support from other international development partners for forestry

In addition to the RGC's initiatives in curbing illegal forest activities, there are *inter alia* a number of programs that have been supported to strengthen the capacity of the government in forest management in accordance to forest functions, their ecologies and uses. Along with the forest management program, the RGC has put more efforts in cooperation with the following international organizations:

1. **WildAid**: establish mobile protection group with support from the armed forces from Military Police;
2. **Conservation International (CI)**: formulated the Cardamom Conservation Program to protect and conserve the forest and wildlife in part of Koh Kong, Kompong Speu and Pursat Provinces;
3. **Wildlife Conservation Society (WCS)**: created the protection group for the biodiversity protected areas Seima in Mondul Kiri province;
4. **Forest Crime Monitoring and Reporting Unit (FCMR)**: was created in 1999 to implement the forest crime monitoring and reporting project. The Global Witness was contracted as independent monitor but contract ended in April 2003. The project was executed by FAO and funded through UNDP. The focal point for this project is the Council of Ministers. The project support was ended in October 2002 but the GW continued its activities till 2003. Despite the project faced lack of funding support FA has been trying to manage the project to continue its activities with funding support from the Forest Concession Management and Control Project of the World Bank. The Societe General de Surveillance (SGS) was then contracted to be the independent monitor for this project;
5. **DANIDA** support on Cambodia Tree Seed and Kbal Chhay capacity building projects which produced considerable valuable document for FA and build capacity of the FA human resource and protect and plan for sustainable development of the Kbal Chhay watershed;
6. **East Asia FLEG**: The RGC has committed to participated in the Forest Law Enforcement and Governance through the ASEAN mechanism. This program will support not only the development of country strategy in curbing illegal logging and trade of forest products but also the regional action program.

5.10.2 DANIDA supported interventions: Mainstreaming NREM through Seila Program

A second phase of Seila, 2001-2005, was formulated by the inter-Ministerial Seila Task Force in 2000 and approved by the Council of Ministers on 5 January 2001. During the development of the Seila program 2001-2005, three crosscutting issues were identified which required a strategic response: gender mainstreaming, poverty alleviation and natural resource and environment management. This Component provides important alignments linking the Seila goal and objectives of poverty alleviation and good governance through decentralized and deconcentrated systems to mainstreaming natural resource management and environment issues.

In January 2003 Seila commenced implementation of its Mainstreaming Natural Resource and Environment Management (NREM) Strategy, in the pilot provinces of Siem Reap, Pursat and Kratie. The mainstreaming project aims to support the improvement of the sustainable livelihoods, environmental sustainability of local projects and development of the sustainable use of natural resources in communes using decentralized and deconcentrated laws and systems. The main Ministries concerned with sustainable management of natural resources and environment were

partners in the formulation of this strategy, and will continue their involvement at both the national and provincial levels.

Mainstreaming Natural Resource and Environment Management constitutes a support to balanced socio-economic development processes. Specifically, it aims at achieving sustainable livelihoods in selected communities through participatory community planning and management of natural resources. This objective will be attained as a result of the process of strategically mainstreaming natural resource and environment management within the Royal Government of Cambodia's Seila program, supporting the implementation of decentralized and deconcentrated development planning, financing and management in commune councils and provinces, as an integral part of the on-going governance reform.

5.10.3 Environmental Management in the Coastal Zone

The counterpart institution for the EMCZ project is the Ministry of Environment (MoE). At the national level the Coastal Co-ordination Unit (CCU) was established in 1996 within the MoE and is the national level unit for project implementation. The National Coastal Steering Committee (NSCS) was established in 1997 with the TOR to discuss coastal projects within the coastal zone area. It now provides a forum for information exchange and facilitation. The focus at provincial level is the Provincial Working Groups (PWGs), and on the task forces and "Action Teams" working under them.

The main objective of the project in phase 2 was "to improve the living conditions for the coastal population in Cambodia through the sustainable use and development of the coastal zone". For phase 3, the development goal is "sustainable development of the coastal zone of Cambodia including environmental protection and management of coastal resources for improved local livelihoods and national welfare".

Phase 3 is the final phase, ending 2007. It continues the integrated approach to environmental and natural resources assessments from earlier phases, targeting: strengthened capacity for environmental assessment in the coastal zone; increased awareness and education on natural resources and environmental assessment in the coastal areas; and piloting community based natural resources projects. A coastal resource centre will be established in each coastal province.

The project has established CZM Provincial Working Groups and Task Forces, chaired by the Governors, and composed of provincial Heads of line departments. These are similar in structure and function to the Provincial Rural Development Committees (PRDC) and to some extent to the Ex-Com. The EMCZ project works with local communities through "Action Teams" (ATs), composed of technical staff of line departments in each province.

At national level, the "National Coastal Steering Committee" has TOR beyond the project per se. It is composed of the 4 Governors, Chaired by the Minister of Environment, and meets quarterly. The Coastal Coordination Unit is located in MoE, and has a network of 15 "focal point persons" in relevant line agencies.

5.10.4 National Community Forestry Program, Concern Worldwide in Cambodia

The "National Community Forestry Program (NCFP)" project is an activity of the International NGO "Concern Worldwide"; working with communities and with Government in Cambodia, to develop sustainable, community-based forest management.

Concern had been active in the community forestry (CF) sector in Cambodia since the mid 1990s,

and had just launched the NCFP in April 1999 when it approached Danida for possible support. At the time, there was much international pressure and encouragement on the Cambodian Government to realize more sustainable approaches to manage their natural resources - particularly forest land, and the MAFF and MOE had both strongly requested Concern's guidance in supporting the process.

The NCFP has a two-pronged approach, with both field activities at the provincial and community Level as well as national level policy formulation in coordinating the civil society input to the drafting of the CF sub-decree. Two provinces (Pursat, Kampong Chhnang) were targeted for Phase I, with expansion to an additional province (Kampong Cham) for a total of three in Phase II.

5.10.5 Integrated Pest Management (IPM)

IPM is in the first instance a holistic crop management system, which helps farmers to grow healthy crops with high yields while safeguarding animal and human health and protecting the natural environment. In addition to its environmental benefits, IPM has an important educational and good-governance role, highly relevant for community-based NREM activities. Via the farmer field schools, with their learning-by-doing methodology, IPM enables men and women farmers to learn to make their own experience-based decisions, as individuals and as communities, initially on pest management strategies but increasingly on farm and overall agro-ecosystem and land use management, and later on community development planning and other aspects of local governance. Like community forestry, participatory land use planning and many other related approaches, IPM is about enabling and encouraging local people to choose their own destinies.

The IPM program has grown very successfully since its original creation in 1993 with FAO, Canadian, and Australian funding to MAFF, and more recently with World Bank and DANIDA support. In the northwest provinces, Seila provided considerable support for the incorporation of IPM into the agricultural development program implemented by the Departments of Agriculture.

In 1998, MAFF officially declared the IPM as one of Cambodia's key crop production strategies, covering now 14 provinces. Effort is needed to continue expanding, to consolidate the non-formal education and NREM governance aspects, and to link them strongly with the decentralization of government services, including among other aspects the "education for all" strategy of the Ministry of Education, Youth and Sport.

5.11. The National Capacity Development Project (NCDP)

The NCDP is part of the component on capacity development, environmental education, and monitoring. The NCDP is a five-year project, now 18 months into its implementation, located in MOE. The project is concerned with developing environment monitoring related capacity in the CDC's investment division and five line ministries MOE, MLMUPC, MOWRAM, MAFF and MIME. During the first half of the project period the focus has been on the central level, and is expected to focus on provincial and district administrations during the second half, i.e. from mid 2004. Therefore the ongoing deconcentration and decentralization processes, and the inter-ministerial coordination and interface with the provincial administrations, have not yet been taken fully into account by the project.

5.12. Other Donor Supported Projects

Land Management and Administration Project (LMAP)

Currently in the land sector, several donors are supporting different Ministries. The Ministry of

Land Management, Urban Planning and Construction (MLMUPC) incorporates some of the full scale projects such as LMAP, ADB and LMP and linked projects related to land issues such as

NRE-Danida, Seila Program, GRET (Prey Nup), PRASAC (Takeo), ADB and GTZ Decentralization process, ADB Stung Chinit Project and individual consultancies for land use planning and housing policy.

The overall goals of the World Bank LMAP project are to reduce poverty, promote social stability, and stimulate economic development. The specific objectives of the project are to improve land tenure security and promote the development of efficient land markets. These objectives will be achieved through: (a) development of national policies, the regulatory framework, and institutions for land administration; (b) issuance and registration of titles in urban and rural areas; and (c) establishment of an efficient and transparent land administration system. The proposed project is the first phase of the government's Land Administration, Management, and Distribution Program (LAMDP), which is expected to be implemented over 15 years. The objectives of the LAMDP program as stated in the Land Policy Statement of the Royal Government of Cambodia (May 2001)

are to: (a) strengthen land tenure security and land markets, and prevent or resolve land disputes; (b) manage land and natural resources in an equitable, sustainable and efficient manner; and (c) promote land distribution with equity.

FINMAP and GTZ are also involved in providing TA to the LMAP project. The Participatory land Use Planning (PLUP) approach is being undertaken under GTZ by way of pilot projects in various communes. FINMAP has developed a methodology for systematic parcel by parcel land registration and concepts for digital cadastral mapping in co-operation with the General Department of Cadastre and Geography of MLMUPC.

The Asian Development Bank (ADB) is financing the review and drafting the sub-decrees and other legal instruments needed to implement the new land law. The Government of Cambodia with technical assistance from UNESCAP is planning to establish a housing policy in the near future. The NGO, OXFAM Great Britain has been working on land tenure and social assessment issues.

A number of NGO programs support private sector micro-project activity in the context of rural development and rural credit programs. (According to National Bank of Cambodia (NBC), about 30 NGOs, 4 licensed micro-finance institutes, and one specialized bank are operating rural credit facilities in Cambodia. NGOs have expended their credit operations to reach about 21 percent of rural households. Nevertheless, the volume of rural credit has not increased as much as the actual demand. GTZ NRM and Land Management (Kampot) GTZ has supported a variety of projects in Kampot province over the past eight years. In 2003 GTZ will commence implementation of initiatives related to NREM and PLUP in Kampot. The objective of the GTZ project will be to enable the commune population and their institutions to manage their natural resources, use them in a sustainable manner and have increased legally assured access to land.

The overall approach is proposed to be a combination of “Participatory Land Use Planning – PLUP” and Community-based NRM activities including land and resources use at commune level, such as aspects of land tenure, land management and preparatory steps to land allocation. By supporting PLUP in the target communes, the GTZ activity will contribute to the state land inventory process, the identification of social concession areas and the definition of responsibilities for land management among the villagers and their organizations. PLUP activities would prepare the ground for official land registration and allocation work by the DLMUPC. This would increase the opportunities for short-term benefits to the population living in the target areas, in terms of legally recognized access to additional land resources.

The GTZ activity will employ a DED advisor on NRM, to be fielded in January 2004, and a Khmer NRM assistant. A management committee for the new NRM component is proposed, on the director/vice-director level among the three provincial departments concerned (PDAFF, PDoE, DLMUPC). This committee would have to be created by an order of the Provincial Governor. It would meet regularly (e.g. every two weeks) under the chairmanship of the Director or Vice-director of PDAFF to manage and coordinate the PLUP/NRM activities carried out by field teams in the target areas. The DED advisor on NRM and the NRM assistant would report to and advise the NRM management committee.

Chapter 6 Measures taken to implement the UNCCD and achievement

6.1 Research and development

Programs include establishment of three Research and Development Institutes to address the issues in Agriculture, Fisheries and Forestry sectors for which three institutes established including the Cambodian Agricultural Research and Development Institute, Forest Development and Research Institute, and Inland Fisheries Development and Research Institute. Moreover, various research centers have been operating particularly for the above three sectors.

At least two government Universities, the Royal University of Agriculture and Royal University of Phnom Penh and one private university provide relevant Bachelor and Master degrees. A CBNRM Learning Institute established to collate and document existing lessons and practices on Community Involvement in Natural Resource Management.

A number of projects and programs being implemented include the Mekong Wetlands Biodiversity Conservation and Sustainable Use Program (in the four Lower Mekong Basin); Tonle Sap Environmental Management Project, Biodiversity and Protected Area Management project at Virachey National Park, WWF's Lower Mekong Dry Forest Eco-region Program, and many other programs/projects.

Cambodia tree seed project is implementing the genetic resources program to Promote conservation and sustainable use, for which major activities include ecological zone to assess genetic variation

The main activities of the Ministry of Agriculture, Forestry and Fisheries on research development has been implemented and accomplished 32 field trials on rotation cropping system and Cover crop planting was aimed to reduce soil erosion in 8 provinces and conducted field trials on rice, Maize, vegetables and fruit tree in Agriculture Development Centers (ADCs) and under DAALI. Moreover, the research results, has been disseminated to farmers through conducting field demonstrations.

The component, moreover, did surveys and formed data base then has been introduced in workshop as well in 5 provinces.

For this parts, focused on the strengthening of laboratory capacity through renovating existing building, installing laboratory equipments and its preferment.

The main activities had been done by this component were:

- Analyzed 105 soil samples,
- Analyzed 837 fertilizer samples,
- Analyzed 366 plant samples,
- Analyzed 522 water samples.

The analyzing has been done focused on pH moister, Organic carbon, Nitrogen and phosphorus availabilities, and carbon exchanges:

- Constructed a complex laboratory (Soil and Plant, Plant protection, and Seed quality Control laboratory) in O Backar Orm DAALI warehouse.
- Constructed new DAALI main building in MAFF compound.
- Constructed 2 canals, 01 in Battambang province and other in Prey Veng province.
- Nominated 71 technical staff of DAALI of which 18 technical staff participated in local training courses and 53 technical staff joined overseas training courses.

6.2 Integrated Pest Management

Crop protection practices developed incorporating IPM principles that increase the productivity of rice based farming systems in a safe, sustainable and profitable manner. IPM program is conducted research to develop, to select and to determine the impact of pest management options for Cambodian rice farmers. Research activities included: studying the factors effecting of pest and cause of pest outbreaks. Research activities were conducted in laboratory, glass house, research stations and farmer fields in 6 provinces.

The IPM program has implemented and achieved 270 Farmer Field Schools with 6,211 farmers, Organized 300 farmer clubs existing 6,080 farmers and organized 30 farmers congress consisting 1,620 farmers. Additionally, the IPM program educated in general school by mainstreamed activities into general school curriculum.

6.3 Integrated Nutrient Management

The main activities are founded out new agricultural technologies and introduce the results to farmers. The outputs of this component are:

- Conducted 400 field trials in 14 provinces and extended to 700 farmers,
- Educated 1,200 farmers in 14 provinces to collect and use compost pits,
- Introduce 420 farmers on integrated crop production in 3 provinces.

The all activities has been done through implementing field trials, field demonstrations, field days, training courses, and producing Ag-note (soil nutrient management) to distribute to farmers.

INM practices developed for the major soil types and region of Cambodia, which contributes to sustainable rice, based production systems.

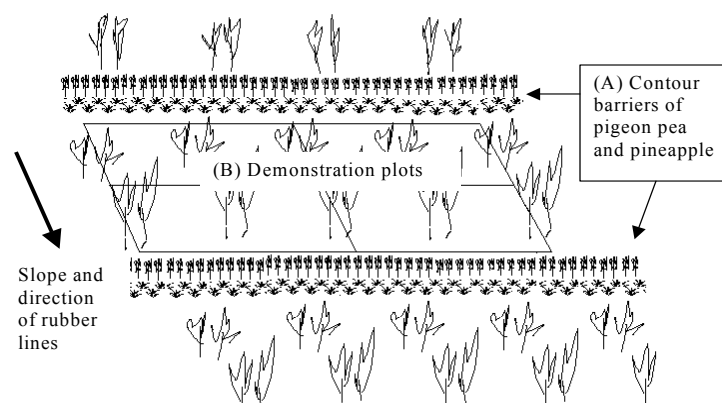
More than 300 fertilizer trials conducted in national research stations and in farmer fields in 16 provinces during 1999. Soil classification guide and fertilizer recommendation rate for rice also developed in Cambodia.

6.4 Land management trials

SFMC make On-farm trial at smallholder rubber pilot farm of Mr. Ty Sambo, Trapeang Russey village, Tgoung Khmoum District, Kampong Cham province in collaboration with SRRC, DGPH and AFD Cellule-project to assist with farming systems solutions to observed surfaced and gully erosion problems in the planted (<3 years) rubber plots.

The proposed system to be tested is shown schematically in Figure 5 with (A) contour barriers of pineapple and pigeon pea across the slope with (B) demonstration plots as (i) farmer practice (FP), (ii) FP plus mulch, (iii) development selection 1 plus mulch, and (iv) development selection 2 plus mulch. Development selections (e.g. fodder crop, sweet potato) were identified in consultation with farmers. A protocol for collaborative activities involving SFMC, SRRC, DGPH and the AFD Cellule-Project was drafted with the objective to 'promote SLM under smallholder rubber to (i) protect young rubber tress in the first 5 years of growth, (ii) minimize soil degradation through fertility decline and soil erosion, and (iii) use short-term cash crops to promote economic sustainability'.

Figure 2: Contour map of smallholder rubber plot in Kampong Cham Province.



Farmers normally burn residues and weeds in November and conditions soon become too dry for further cropping. With inter-row areas cleared or under weed fallow, the risk of erosion increases toward the onset of the next wet season through runoff generated both upslope and onsite. We understand that erosion cannot be solved at the farm level and opportunities to address erosion at the community level should be investigated.

This activity to demonstrate farmers address onsite erosion issues by recommending:

- All crop residues should be used as mulch materials to protect the soil surface.;
- Inter-rows should be cropped during wet season and dry season wherever possible;
- Contour plantings of crops able to control erosion by impeding the flow and slowing the velocity of runoff water should be undertaken; leguminous trees or vetiver grass could be considered in areas of high erosion risk, and cash or fodder crops in areas of lower erosion risk;
- FFS on land management should be considered to promote sustainable land use.

6.5 Land mine

Twelve year achievement of CMAC De-mining Operations: In term of planning, it is not easy due to the uncertainty of funding and the restructuring which prevailed during most of the first half and required many reviews to the plan to match deployment and resources (Twelve year achievement of CMAC De-mining Operations).

Large tracts of arable land are infested by dangerous land mines planted, and unexploded ordnance (UXO) dropped, during past conflicts, which routinely claim lives and limbs of both human and animals. Mine Clearance is therefore very important for making arable land safe for cultivation and prevents death and lifelong handicaps caused by severe injuries. The Mine Clearing Program has been in operation for a number of years. Reported annual casualties from landmines and UXOs decrease from 1,743 in 1996 to 797 in 2005 (estimated). The land freed from land mines stood at 1,225 Ha in 1993 and increased to 32,974 Ha in 2005 (estimated). Much work still remains to be done.

The socio-economic assessment of 1,758 minefields cleared from 1999-2004 reveals how the de-mined lands are being used and who are benefited from:

- Direct beneficiary : 13,714 families
- Indirect beneficiary : 270,154 families
- Students : 34,938 students
- Developing sites : 1,994 sites
- Cleared minefields : 1,758 Mine Fields

6.6 On-farm fertilizer and manure trials

On-farm fertilizer by manure trials were collaborative activities involving farmers and DAALI staff based in Kampong Cham, Kampong Thom, Siem Reap, Battambang, Pursat, Kampong Chhnang, Takeo, Kampong Speu, Kampot, Prey Veng, Svay Rieng and Kratie provinces. Farmer's co-operators were selected first, for their willingness to work with DAALI staff to improve fertilizer management strategies in these provinces and second for their interest in using locally-available cow manure in their on-farm soil fertility management programs.

The objectives of these trials was to demonstrate yield and cost benefits from the combined application of NKP and cow manure to rainfed, lowland rice grown in farmer's fields in 12 provinces. Treatments considered of four fertilizer strategies with applications either according to current farmer co-operator's practice (FP), or using recommendation rates (RR) of NPK fertilizer: (i) 0.5 RR, (ii) 0.5 RR plus 2.5 t/ha cow manure (0.5RR+CM), (iii) 0.5 RR plus 5 t/ha cow manure (0.5 RR + CM) and (iv) 1 RR.

In each site, individual plots were 200m² (Yield plot of 50m²) with and overall experimental area of approximately 830m². For each plot, measures of harvest area (m²), numbers of hills, tillers and panicles (no./m²), plant height (cm), biomass (t/ha) and rice yield (t/ha) were taken. To account for variations in yield due to rice variety, maximum yield (Y_{max}) was determined at each Site and relative yield (RY) calculated ($RY\% = 100 * Y_{ied} / Y_{max}$).

Our results describe an opportunity to improve on-farm fertilizer management strategies by reducing the use, and thus cost, of inorganic fertilizer by using manure produced and stored on-farm; an opportunity quickly lost as supplies of locally available manure declined and transport distance and cost increased. However, more information is required if we are to better define the supply of, and markets for, cow and other farm yard manure in order to better understand the opportunity cost of its on-farm production. This should include the identification of alternative on-farm uses of manure, its value if sold in local markets, quantities being produced versus on-farm requirements, its nutrient content and fertilizer replacement value, etc. This report are taken onto farmer fields in other rice-growing districts and provinces and linked to other soil fertility management programs targeting food security and rural livelihoods in Cambodia.

6.7 On-station fertilizer and manure field trials

The objectives of these trials was to demonstrate yield and cost benefits from the combined application of NPK and cow manure to rainfed, lowland rice grown on difference soil types in research station and Agricultural Development centres in Cambodia.

At each location, treatments (replicated 3 times) were 0, 0.25x, 0.5x, 1x and 2x the recommended rate (RR) of NPK 40:40:30 (i.e. 0, 0.25RR, 0.5RR, RR and 2RR as urea, DAP and KCl) and 0, 2.5 and 5 t of CM/ha. Manure, DAP and potash were applied before transplanting, and urea was applied in equal split broadcast applications between tillering and panicle initiation. Treatments were arranged in factorial combination as follows: 0RR+0CM (control), 0RR+2.5CM, 0RR+5CM, 0.25RR+0CM, 0.25RR+2.5CM, 0.25RR+5CM, 0.5RR+0CM, 0.5RR+2.5CM, 0.5RR+5CM, RR+0CM, RR+2.5CM, RR+5CM, 2RR+0CM, 2RR+2.5CM, 2RR+5CM. A randomised block design with locations as blocks was used. Individual plots were 25 m² (yield

plots of 9 m²) with an overall experimental area of approximately 1000 m². At each plot, measures of numbers of tillers and panicles (no./m²), plant height (cm), biomass (t/ha) and rice yield (t/ha) were taken.

Relative yield, however, increased ($P < 0.05$) with added CM ($0 < 2.5 < 5$ t/ha) from 88% in 0CM plots to near YMAX in the 2.5CM and 5CM plots, and there was a significant ($P < 0.058$) CM by fertilizer interaction. Figure 2 shows RY levels tending to increase with both applied CM and fertilizer, however, experimental data were variable (e.g. for RY, the error CV was 16%) and variations were inconsistent with imposed treatment. For example, very low RY was observed in 0.25RR+5CM (84%) and 0.5RR+0CM (79%) plots with RY less than or equivalent to control (range 84-98%); in other cases, RY increased consistently toward a plateau at 100% with increasing levels of fertilizer and CM.

Our results describe an opportunity to improve on-farm fertilizer management strategies by supplementing the use of inorganic fertilizers with locally available CM. That we could only infer yield increases with applied NPK fertilizer suggests a need to re-evaluate aspects of experimental design related to site selection (e.g. residual soil fertility), trial monitoring (e.g. plot size, fertilizer incorporation, seed bed preparation, harvest area, yield determination) in order to better manage experimental error.

This study are taken onto farmer fields in other rice-growing districts and provinces and linked to other soil fertility management programs targeting food security and rural livelihoods in Cambodia, especially on-going DAALI compost making activities.

6.8 On farm compost making

Rice soil types in Cambodia have sandy to sandy-loam surface textures, are strongly to very strongly acidic (pH 3.2-5.5) in the surface 0-15 cm and infertile. While fertilizer is recommended to overcome soil infertility, its cost to resource-poor farmers is high and few farmers use inorganic fertilizer at recommended rates even though they well understand that fertilizer is required to sustain production. The purpose of APIP/DAALI on-farm compost making activities was to help resource-poor farmers improve productivity as well as enhance their soil's fertility through the use of readily available, local raw materials such as animal manure and rice straw. Our objectives are to (i) educate farmers in the collection and use of organic residues in their farming system, (ii) improve soil structure and fertility to increase crop yield, and (iii) decrease the on-farm cost of soil fertility management.

6.9 Compost houses

Compost making on-farm using pits, heaps or bins is one way to assist farming families to overcome this problem. Of these options, the use of compost pits with walls to increase the volume of compost produced and a roof to protect composting materials from direct sunlight and heavy rainfall was preferred. Such compost 'houses' are well accepted by farmers, are low cost (money, labor) and have low on-going maintenance requirements.

This figure is indicates compost pit dimensions, compost house building materials and types of materials to be added to the pit. Composting materials are added to the pit on a regular basis (e.g. some daily, some weekly and some seasonally). Materials are loose packed to allow good aeration in the pile in layers 15-20 cm thick and separated by layers of animal manure 5-10 cm thick and wood ash to a total thickness of 0.5-1 m. It is recommended that the compost be keep moist at all times (with light watering) and turned-over every 3-5 weeks. It is expected compost will be available for use in on-farm activities after 3-4 months.

6.10 Achievements, recommendation and lessons learned by the Sustainable Soil Fertility and Land Management

Recommendation and lessons learned by the Sustainable Soil Fertility and Land Management (SSF&LM) of Department of Agronomy and Agriculture Land Improvement (DAALI) of the ministry of Agriculture, Forestry and Fisheries (MAFF) of Cambodia conducted in 14 province within alternative agro-ecosystems from 1999 to 2004 with a goal to develop sustainable land management based farming system for sloping land.

Land degradation through soil erosion and fertility decline is recognized as a major limitation to cropping red soil in Cambodia (Crocker, 1962). Erosion control through contour planting of barrier crop based farming systems offers solutions to observe surface and gully erosion problem.

SSF&LM is strongly compatible with key result areas to improve agriculture and rural development, maximize environmental sustainability and effective partnerships and delivery of the aid program with excellence.

With its objectives designed within a timetable, the project has achieved the national network of SSF&LM in which information has been analyzed as to explore the principle areas of environment, social and economic impacts and the factors that contribute to success. Acceptance of these impacts, SSF&LM identified the farming system models for semi-commercial producers which consider soil fertility, erosion control, productivity of the hedges\barriers to be used, and farmer needs.

Sustainable Land Management (SLM) results suggest the current set of contour-based treatments combining into four broad categories, *viz.* Farmer Practice (FP), FP+ Vetiver, FP+ Short to revealed that (1) Vetiver strips reduce soil losses to 30-50% of FP in the 2 years after planting, and to <90% after that, (2) Short to medium-term cash crop barriers reduced soil losses initially to 50% of FP, and to >90% after 3 years, while (3) Agro forestry hedges maintained soil losses at around 50% of FP during this time.

Timely technical assistance, training, capacity building, workshop, administration, management and information systems on SSF&LM allowed a balanced approach to the network management function, effective distribution of information as printing materials, effective links with similar local programs, and network support activities to the stakeholders.

Under the leadership of MAFF, lessons have been learned by stakeholders to various degrees across the implemented areas (1) to address SSF&LM issues in order to be functioning very well for the next step, (2) to support MAFF take a leadership as a full function for development and guidance supporting a longer-term intervention and well enough experience in collaboration with other international projects in terms of parting country for the benefits of working together to minimize risks, (3) to mainstream all beneficiaries stakeholders (including political decision-maker) in SSF&LM into\or parallel the national objectives, (4) to be effective, respect from partnerships stakeholder in dynamic SSF&LM approaches and to make sure other stakeholders in institutionalizing and continuing these approaches for longer-term intervention,(5) to encourage peer recognition as good work by institutionalizing international and\or national forum, by exchanging staff and on-the-job training to the trainees, and by networking scientific publications among international and\or national agencies.

A sound platform for information and experience sharing within the network is (1) appropriate documentation methodologies to conduct SSF&LM research and development activities and issues, (2) timely technical backstopping activities and effective appropriated staff exchanges, (3)

improvement of quality control in On-farm and development activities, (4) bottom-up working rather than top-down to encourage communication and the spread and ownership of initiatives at operational levels to enhance their integration as mainstream organization activities.

Additionally, the quality of researches especially where institutional and individual capacities are likely still weak, where there is questionable commitment on behalf of the participants to the common goal or when resources are very limited.

6.11 Farming system improvement

There are excellent opportunities and potentials for improving existing farming systems. Unfortunately, these cannot be fully harnessed because of an unfavorable policy environment, lack of full appreciation of the nature of such opportunities, and inappropriate development strategies. Such opportunities and potentials exist in crop production as well as in the livestock and fisheries sectors. Appropriate changes in policies should enable farmers and fisher folk to take advantage of these opportunities.

Crop intensification and diversification (and increased value-added through secondary and tertiary processing) will not only increase farm incomes but also bring underprivileged groups into the mainstream of agricultural development. High-impact intervention areas include the following: improved water regime control (i.e., field drainage); R & D and subsequent field testing demonstrations of appropriate technologies (e.g., new crop techniques, farm mechanization, balanced fertilization, integrated pest management, and improved land preparation techniques); and effective support services for intensive and diversified farming systems.

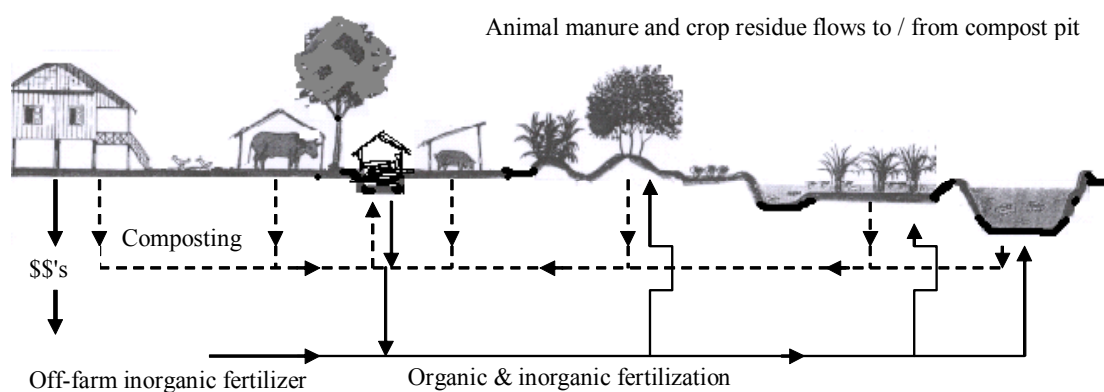
The development of an export market for rice and other food crops must go hand in hand with the promotion of crop diversification in rice-based cropping systems. The public and private sectors should work together in promoting the intensification and diversification of farming systems to produce a number of desirable results:

- A wider range of technology options. Farmers are given a broad range of options in terms of technology, farming systems, crop mixes, and cropping patterns, allowing them to take advantage of a favorable production environment and better farm gate prices.
- Economical use of water. Water used for one purpose can be re-used for another (e.g., for inland fishery and irrigation) in such technologies as rice-fish farming widely practised in Southeast Asia.
- Improved nutrition. In addition to improving fish production, diversification of farming systems can also encourage the production of nutritionally valuable crops such as field legumes and vegetables.
- Stable food supply. Production of certain food and feed crops can be spread out within a crop year. Not only will this smoothen out seasonal fluctuations in food supply and farm gate prices but will also increase the level of utilization of post-harvest facilities rendering investment in such facilities economically attractive.

The development of agro-forestry must be planned in harmony with the development of crop agriculture. It is imperative that community-based forestry, agro-forestation, and agro-forestry-livestock farming systems be planned in such a way as to strike a balance between preserving the beneficial hydrologic role of forest ecosystems and increasing food production. The emphasis on watershed management protection should be on erosion control, watershed protection, reforestation, and water resource enhancement.

6.12 Develop and Improve Fertilizer guidelines

SFMC activities assist DAALI improve fertilizer guidelines and provide a platform from which to develop system level ISNM protocol at multiple scales ranging from household, farm and village to district and perhaps national levels for general application.



Year	House	Animals and compost making	Upland crop and vegetable gardens	Rice main fields	Fish ponds
1989 on	CIAP & CARDI/ACIAR rice-based research and socio-economic farming systems activities				
1992-96	UNICEF Family Food production Program				
1992 on	FAO Special Program for Food Security (SPFS) and Women in Irrigation and Nutrition (WIN) programs				
1992-96				FAO fertilizer projects	
1995-99	DAALI / FAO compost making activities				
2000-01	DAALI / APIP / FAO composting activities			DAALI / APIP inorganic fertilizer x manure	
2002				DAALI / APIP / CRS / CARDI inorganic fertilizer x manure	
2003+	Whole farm assessment of investment, resource allocation and risk management under rainfed lowland rice				

Figure: An implementation schedule for APIP to develop ISNM protocols for field activities to match fertilizer and land management recommendations with farm-level resource allocation decisions.

Chapter 7 Capacity development needs for implementation the obligation of UNCCD

7.1 Human Technical Competence

During the civil war prolong most two decades, Cambodia lost large of number of educated and well-experienced people thought death by Khmer Rouge Genocide. Immediately after the war ended and even nowadays, Cambodia suffers lack of quality people enable to complete in this age of globalization and especially to implementation the obligation under the Convention to Combat Desertification.

Although all Government agencies recognized increased highly number of educated people but Cambodia still suffers from shortage of basic skill people to handle with specific work areas. Government staffs have low motivation, poor understanding among staff of the relevant obligations. Not many staff has the appropriate skills to do their jobs and have limited work experiences.

There are limited of the environmental skills and have limited knowledge in foreign languages not fully use the existing capacity for the advantage of the institution and only few staffs received appropriate training in addition to their formal education.

Some staffs are assigned to work different from their own specific skills or their assigned roles and they are insufficiency responsible for their duties or performance.

The Royal Government's Rectangle Strategy launched in July 16, 2004 has set out a comprehensive strategy on education, as express in detail in the education sector support program for 2001-2005. The strategy aims to enhance capacity of human resources with high technical and scientific skills that effective respond to promote development into the globalization trend (Rectangle Strategy for Growth, Employment, Equity and Efficiency).

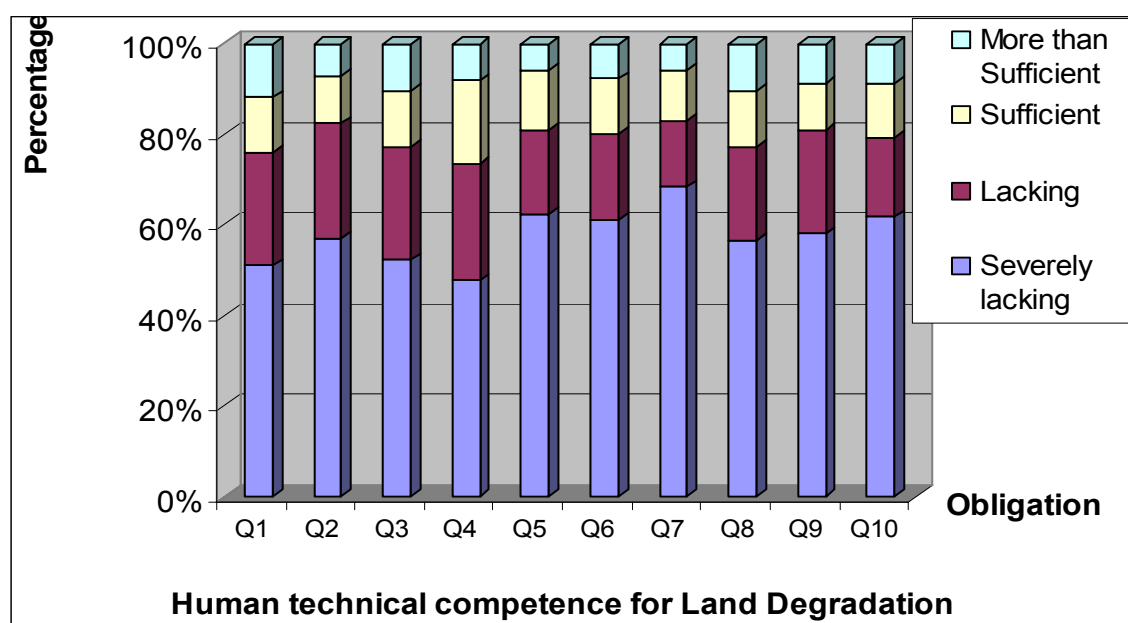


Figure: Human technical competence for Land Degradation

According to the result from conducted surveys for human technical competence in order to fulfill the obligation of the UNCCD convention, this figure has shows that the most severely lacking of human technical competence most 80 percent which including about 60 percent severely lacking and about 20 percent lacking. This figure also clearly indicated that Cambodia still needs and require about 80 percent of the human technical competence for implementation of her obligation with UNCCD.

The figure also indicated that just only about 20 percent that Cambodia has the human technical competence working on related to land degradation. The human technical is priority problem and needs to develop both quality and quantity.

The relative of human technical competence by sectors working under CCD are still very limited. According to the result from conducted surveys for human technical competence working under UNCCD in order to fulfill the obligation of the convention, the severely lacking of human technical competence working on CCD obligations within the governmental agencies, international organizations, local organizations, but within the academic research and development there were the percentage of responses of human competence under CCD are most the same percentage between severely lacking, lacking, sufficiency and more than sufficiency.

The result from this table also clearly indicated that within the governmental agencies the obligations under UNCCD such as 3.2.1: Education and Public Awareness which are undertake training activities on good soil management practices, having formal academic courses and offerings on soil science and good soil management practices, undertake regular public information activities on good soil management practices, 3.2.2: the transfer, acquisition, adaptation and development of economically, socially, and environmentally appropriate technology which included obtain tools, methods or strategies on good soil management practices from sources outside the agency or organization, produce new tools, methods or strategies on good soil management practices in the agency/ organization, modify tools, methods or strategies on good soil management practices, to better suit the social, economic, and environmental conditions in Cambodia, introduce to farmers and other soil management practitioners in Cambodia new tools, methods or strategies on good soil management practices suited for the country, 3.2.3. Training & technology regarding alternative, renewable energy sources such as: conduct training activities on good soil fertility enhancement, using methods that don't need in organic (compost) materials and which are renewable, conduct training activities on good water management to produce renewable energy, offer regular academic courses on good soil and water management practices for sustainable energy development in Cambodia, offer new tools and methods on good soil and water management practices that improve energy conservation in Cambodia, 3.2.4: Promotion of alternative livelihoods, including training in new skills, which are including: conduct training activities on livelihood skills that conserve soil fertility like organic farming, conduct public information and advocacy activities to promote livelihoods that conserve soil fertility like organic farming, 3.2.5: Training for collection and analysis of data for disseminating & using early warning information systems, covering drought and food production which focusing on conduct training on climate data assessment to determine and map drought and flooding risks in Cambodia, do public information activities on drought, flooding risks in Cambodia, 3.2.6: Systems to collect, analyze & exchange information included Develop, operate and maintain tools and procedures for acquiring and exchanging information on good soil and water management practices with other countries, Develop, operate & maintain tools and procedures for acquiring and exchanging information on good soil and water management practices with soil and water management specialists and practitioners in Cambodia, Analyze data and information on good soil and water management practices from among soil and water management specialists and practitioners in Cambodia, Analyze data and information on good soil and water management practices from among soil and water management specialists and practitioners from other countries, 3.2.7: Effective early warning & advance planning for periods

of adverse climate variations, 3.2.8: Systems for Research and Development, 3.2.9: Technical and scientific cooperation and 3.2.10: Joint research programs for the development of appropriate technologies, including conducting Research and Development activities on good soil and water management tools and methods, with other institutions in and outside Cambodia are severely lacking about 65 percent and Cambodia still needs to develop of the human technical competence for implementation of Cambodia obligation under CCD.

The results that received from international organization in the table 3.3.1 could interpretation that the Cambodia current status are pay less attention for land degradation activities under obligations of CCD and more than 85 percent are severely lacking of responses on human technical competence working under CCD.

The respond from the local organization in the table has indicated that the severely lacking of responses on human technical competence working under CCD the government pay also less attention, specifically most worst are related to some obligations such as 3.2.5: Training for collection and analysis of data for disseminating & using early warning information systems, covering drought and food production, 3.2.7: Effective early warning & advance planning for periods of adverse climate variations, 3.2.8: Systems for Research and Development, 3.2.9: Technical and scientific cooperation, and 3.2.10: Joint research programs for the development of appropriate technologies.

7.2. Public awareness among stakeholders

7.2.1. Public Awareness for forestry

The RGC acknowledges transparency in forest resource management. An office of public affaire unit has been established located in the premise of the Forestry Administration. This office has been actively raised awareness on the government's policy, and strategies to all relevant forestry stakeholders, civil societies, private sector, and public at larges. This unit is responsible for collecting and collating all forestry data and information available to be used by relevant forestry stakeholders who are interested in the information. The data and information are available upon request. The main tasks of the unit are to:

- Disclose information and data related to forest economy, forest management, forest regulation, and to report on interested stakeholders' comments and suggestions on natural resource management;
- Clarify related questions on forest and wildlife management and conservation;
- Describe and explain goals, management and conservation strategy to the public;
- Coordinate with other institutions in order to collect and collate information, event, activities, and progress in forest management ;
- Research and analyze press release, editing documents, conference, workshop, or training report;
- Issue forestry magazine.

7.2.2 Institutional Strengthening and Capacity Building for forestry

Japan International Cooperation Agency (JICA) has been implementing the Capacity Building Project for the Forestry Sector in the Kingdom of Cambodia (CBFS Project) since December 2001. The CBFS Project constructed the building named Forestry and Wildlife Training Center (FWTC). The project aims to upgrade the capacity of the Forestry Administration (FA) and Provincial Forestry Offices (PFOs) to formulate plans, implement, monitor and evaluate the laws,

policies, plans and projects in the priority areas, namely, reforestation / rehabilitation of forestry resources; forest management and utilization; and community forestry. To achieve this, the project is composed of two components: i) to assist FA in the preparation of an *overall capacity building program* and, ii) to organize several types of technical training to build the capacity of FA and PFO staff.

Along these lines, CBFS Project has formulated a framework for the *overall capacity building program* and, based on this framework, conducted several types of training covering a wide range of technical fields in the forestry sector. These training activities have significantly improved the capabilities of more than 800 FA and PFO staff members.

In December 2003, JICA assigned a short-term expert to FA, the CBFS Project in order to assist the Forestry Administration and PFOs according to the Forestry Law) in reviewing and formulating the *overall capacity building program*, taking into consideration the current circumstances of the forestry sector and the role of the newly established FA. He was assigned to carry out data collection on and analysis of the forestry sector and FA, including the mission of FA, weaknesses and strengths of FA, external factors affecting its performance, etc., by conducting a self-analysis workshop in FA and interviews of FA staff, donors and NGOs and proposing a list of activities which need to be undertaken by FA to strengthen its capacity for the future.

In April 2004, another short-term expert was dispatched to assist the working group members to review, amend and add new inputs to the proposal and then finalize it as the report herewith on the *overall capacity building program* for the forestry sector. This program includes a five-year action plan which would be necessary to make these proposed activities more feasible and operational. It also describes the training needs, cost estimate of training courses, the institutional framework for program implementation and a monitoring /evaluation schedule to carry out the program.

In July 2004, the draft final report on the program was shared with major stakeholders in the forestry sector (including the respective ministries, universities, donor agencies and NGOs) and received their comments to upgrade it. This report will be used for FA staff to share clear and specific ideas on their capacity building and to take necessary actions in close cooperation with other ministries, donors, NGOs and various other stakeholders in the forestry sector.

Under the circumstances constraints, several donors have supported Cambodia's forestry sector in order to protect and properly manage forests in the country, since forests in Cambodia are one of the important resources for people's livelihoods and the national economy. With the assistance of donors and NGOs so far, RGC has made the following major accomplishments:

- a. Restructuring of the organizational setting from DFW to FA
- b. Establishment of the Forestry Law
- c. Establishment of sub-decrees (forest concession management, forest management and elimination of illegal activities in the forestry sector, community forestry, etc.)
- d. Preparation of technical guidelines for the management of concessionaires, including Code of Practice and Planning Manual for Forestry Management
- e. Elimination of large scale of illegal logging activities
- f. Increasing protected forest and protected areas to 41.29% of total land of country.

7.2.3 Technical Working Group on Forest and Environment (TWG-F&E)

The Technical Working Group on Forestry and Environment (TWG-F&E) was established on 19 November 2004 to provide a mechanism for government-donor coordination for supporting and strengthening development activities within forestry and environment. In addition, TWG-F&E provides technical assistance to the Royal Government of Cambodia in identifying priority areas, harmonizing of activities, improving the utilization, mobilization of resources and support efforts to strengthen the sector's capacity to contribute to economic growth. The TWG-F&E is one of the 17 joint Technical Working Groups (TWGs) of the RGC. The Work Plan milestone is attached in **Annex 4**.

TWG-F&E meetings are regularly called at least four (4) times per year. If necessary the Chairman and the Coordinator can at any time call for additional meetings. The TWG-F&E is assisted by a Secretariat who provides managerial and technical advice, and logical assistance to support and facilitate mandate fulfillment. This initiative originates from the DANIDA supported Cambodia Tree Seed Project. Within the work plan milestone, funding the activities is partly constraint to the implementation of the each program.

The activities under this work plan include:

1. Develop relevant program under the NFP;
2. Practical implementation of forest demarcation and demarcation of protected areas;
3. Formulate national forest management plan;
4. Develop management plans for protected areas;
5. Forest cover assessment 2005;
6. Forest management options and strategies identified and analyzed;
7. Study of domestic demand of forest products and potential export markets;
8. Continue forest and land crime monitoring and reporting and improve cooperation between FA and MOE monitoring systems;
9. Secure support and funding the implementation of the national forest gene conservation program – Action Plan 2006-2010;
10. Implement national community forestry program and develop community forestry;
11. Assess and test out partnership forestry in pilot communes as an alternative form of forest management and mechanism for forest revenue to contribute to local development;
12. Develop small scale family business based on forest product promoted;
13. Implement overall capacity building program;
14. Install web site for TWG-F&E;
15. Tree planting for socio-economic purpose and environmental services by multiple stakeholders;
16. Processing technique for value-added products and innovative product promoted;
17. Support capacity building project for forestry sector, phase II;
18. Support capacity building to tree seed development and apply for funding and continuation;
19. Independent forest sector review including support to sector program and support to TWG-F&E secretariat and ad-hoc activities.

7.10 Organize and facilitate workshops, field days

These activities are continuing. Most activities were organized and facilitated by counterparts. In giving training to others, counterparts developed their networking, technical, facilitation, presentation and expression skills. While many activities have been undertaken or are planned, it is too early to assess their effectiveness and value in building counterpart capacity.

Integrated Soil Nutrient Management Training-of-Trainers workshops: Counterparts facilitated and provided, with IPM support, ISNM ToT courses at Tonle Bati ADC and Department of Agriculture at Takeo province:

Traning Objective

1. To better understand soil fertility and Land Management problems in rural areas;
2. To discuss issues and develop strategies to address soil fertility and Land management problems in co-operation with farmers;
3. To increase food security and rural incomes through sound soil fertility mangement by introducing provincial staff to new strategies and techniques to educate farmers in ISNM through FFS and on-farm demonstration; and To promote the sustainable management of rural lands in Cambodia.

Traning Activities

- Initial participant evaluation – to assess participant's current knowledge of soil fertility and land management issues and practices in their provinces;
- Lectures and group discussions on sample strategies to promote sustainable soil fertility and land mangement practices;
- Group discussion, with presentation, on participant's experiences working with farmers;
- Introduction to agro-ecosystems and presentation on relationships between landscape, soil and crops;
- Lectures on the physical, chemical and biological properties of soils;
- Practical demonstrations of (i) simple PRA tools (e.g. transe walks, and resource, village and crop maping), (ii) Soil sampling, (iii) the packing and transport of soil sample to laboratory, and (iv) the physical and chemical analysis of soils;
- Farm inventories, such as (i) past agronomic practices inventories, e.g. cropping, fertilizer use, agro-chemical use, irrigation, etc. histiries, (ii) farm maps, (iii) chemical and physical properties of surface (0-15 cm) and profile (0-15, 15-30, 30-60, 60-90 and 90-120 cm) soils;
- Group discussions on ISNM-FFS;
- Local study tour to visit farmer co-operators, nean by the training entre to discuss making and using compost (result 70% of farmers co-operators visited know about compost making and its importance in soil fertility managemnt); and also visted some community development program involving vegetable cropping, fruit trees, livestock, fish ponds, etc.;
- Discussions on FFS and on-farm ISNM demonstration activities, including trial desigh, fertilizer strategies, datacollection, crop harvest and data evaluation;
- Final participants evaluation – soil fertilizer management, inorganic and organic fertilizer, macro and micro-nutrients, role and importance of N, P and K.

In the final evaluation, 70%-80% of participants demonstrated a good undertanding of course contents, whereas 20%-25% showed a better understanding, and 5% showed little improvement in their understanding of course content, the trainers were very satisfied with this outcome. Group discussion were lively and all participated. Discussion on experiences working with farmers and

identifications of soil fertility and land management problems highlighted an improved awareness among participants of strategies to overcome these problems. Participants said they were now better able to facilitate ISNM training in their provinces and to demonstrate simple, easily understood soil fertility and land management strategies through FFS and on-farm trials that can be readily adopted by local farmers. This is just one step in the process to improve and strengthen soil fertility and land management practices to encourage sustainable production in rural areas of Cambodia.

7.11 Transfer Technology to Farmers

Transfer of technology to farmers has been implemented through disseminating extension materials packages, short training courses, and long-term seasonal training courses, field trials and demonstration on farmer land. The activities had been conducted by technical sub-components, composing SFMC, SPP, PPS, IPM and FSAE. Moreover, several valuable extension materials were produced and disseminated to farmers such as:

- 9 pamphlets on pesticide safe use;
- 13 pamphlets on Insect pest on rice, vegetable and other crops
- 30 Ag-notes on plant protection, including Ag-notes on alternative pest control, Field Rodent management, Rice black bug, BPH, Armyworm, Diamond Back Moth, Biological control, Pest control recommendation.... and announcement on BPH, Golden snail, Coconut beetle outbreak;
- Golden snail morphology, biology and measure to control it
- Agricultural Note on Soil Fertility Management in Cambodia
- Agricultural Note on Soil and Plant Analysis Laboratory,
- Agricultural Note on Sampling for Soil Fertility Assessment,
- Agricultural Note on Compost making,
- Agricultural Note on Farmers experience with compost making,
- Agricultural Note on Benefit of Combine NPK fertilizer and Cow Manure,
- Agricultural Note on Animal Manure are available source of Plant Nutrition,
- Recommendation on Soil Fertility Problems.
- Agricultural Note on method of Groundnut production
- Agricultural Note on method of Soybean production (B3039 variety)
- Agricultural Note on method of Composite corn production
- 28 extension package on use of quality seed were disseminated to farmers.
- Agricultural note on method of mungbean production.

The technologies that the project has introduced were simple and farmers-oriented since the project plans were basically prepared based on the needs of farmers. The technologies are indicated to be transferred from farmer by establishing a farmer group with actively joined and supported from Provincial Department of Agriculture (PDA), local authority and Provincial Department concerned

Moreover, several outputs had been made through produced and delivered agricultural materials to farmers. For this constant, clear evidence was indicated that the farmers have been improved their productivities in doing agriculture and minimizing their agricultural inputs in terms of farmers used appropriate technology in applying pesticide and fertilizers, farmers used qualified seed both rice seed and non-rice crop.

7.12 Develop extension packages

Ongoing APIP support for this activity is essential if DAALI is continue to develop expert knowledge in soil fertility management and become a storehouse of related knowledge on land management and an adviser to government, NGOs, other agencies, agribusinesses and farmers.

Three lightweight extension packages were prepared:

- a) A 10-minute video on compost making was prepared in Khmer by SFMC counterparts and local television (KTV) staff (SFMC, 2001a). The video was shown on local television. While multiple copies of the video are available, these have to be 'packaged' with materials describing outcomes from compost making and manure use for distribution to provincial and district staff.
- b) A draft Soil and Plant Analysis Laboratory methods manual (Dowling AJ, 2000d).
- c) A draft Soil and Plant Analysis Laboratory quality assurance manual (Dowling AJ, 2000e).

7.13 Initiate a formal training program

Technical Office and Soils and Plant Analysis Laboratory counterparts received HRD/TM-supported training in English, computer and management.

Dialogue commenced with educators in Cambodia and abroad for overseas and national post-graduate training of counterparts (Masters and MBA degrees). Institutions in Cambodia included (1) UTA within RUA, (2) the National Institute of Management (NIM), (3) Norton University, and (4) Regent College. Overseas institutions included (1) the Queensland and Murdoch Universities in Australia, (2) the University of Philippines in Los Bãnos, (3) the University of Chiang Mai in Thailand, and (4) the University of Hanoi in Vietnam. Recommendations were made through HRD/TM, but little was achieved. Arrangements for 2 counterparts to undertake a 12-month MBA training course at the NIM in Phnom Penh are uncertain. Nothing has apparently been decided on overseas Masters-level training for 3 counterparts in soil science and soil fertility management.

7.14 On-the-job training for Technical Office counterparts

Land Management Office (Previous Technical Office) OJT was aligned to the 'new' DAALI mandate (Gartner JA (ed), 2001). Development activities were undertaken to promote effective soil fertility and land management support and networking services for the (1) identification of soil types and collection of soil samples for analysis, (2) planning, implementation, technical M&E and field inspection, analysis and reporting of adaptive composting, fertilizer and animal manure field activities, (3) provision and facilitation of ISNM ToT and provincial and district ISNM FFS, (4) maintenance of data inventories, and (5) development of appropriate extension materials.

Counterparts also recognized a possible future function of the Land Management Office as a field support service provider for a re-designed and better defined Soil and Plant Analysis Laboratory. Support services including surveys, adaptive on-farm and on-station field trials, soil and plant sample collection, and field days were discussed and skills to undertake these activities reinforced. Attention was also given to identifying future collaborative activities with national and provincial agencies (e.g. BAMS, CARDI and DAE), NGOs (e.g. CRS in Phnom Penh and APS in Battambang) and projects (e.g. AQIP and CAAEP in Phnom Penh).

7.15 Lessons Learned

SFMC is a national program of people and provincial bodies learning to work together under the leadership of MAFF/DAALI. To varying degrees across the network the following lessons have been learned:

- To address Sustainable Land Management (SLM) issues, the support and network are needed and these function very well despite typical of the different topographic areas. Further, scientific and organizational guidance, are needed and often resource and information as well. Long-term leadership is needed to support farmer and provincial wanting to work together;
- Management and communication issues were eased to management and operational structures and to cultural and social differences within these organisations. Effective with activities and interventions managed to encourage counter parting at all levels of each organisation as the lesson. This encourages national ownership of activities, their integration into mainstream national programs;
- Objectives were consistent with and paralleled NAP objectives in term of SLM in order to conduct quality activities;
- This is necessary for long-term sustainability, and the lesson is that uncontrollable externalities are perhaps a greater challenge to long-term sustainability;
- Effective activities in SLM require a dynamic approach that is able to respect interacting biophysical, social and economic factors affecting decision-making by farmers.

7.16 Conclusions

With its goal mentioned above, activities have focussed on (1) research and development, (2) capacity building and (3) networking and information activities in 3 different topographic regions. Capacity-building and human resources development components achieved the effectiveness of the professionally trained staff able to undertake and implement the activities of SFMC and SLM effectively.

Research and Development components demonstrating the effectiveness of the combination of organic and inorganic fertilizer, contour hedgerows of vetiver grass, cash crops and tree legumes in controlling rates of soil loss. Regional co-ordination has also provided a sound platform for information and experience sharing within the cross-section at both regional and national levels through:

- Documentation of appropriate methodologies to conduct SLM research and development activities and issues;
- Effective and timely technical backstopping activities with support from appropriate regional resource persons;
- Effective and much appreciated staff exchanges; and
- Improved quality control in on-farm and development activities, and in data collection, management, analysis and reporting.

Network capacity building activities have seen a paradigm shift in willingness to undertake participatory activities involving extension workers, farmers and farming communities to determine the sustainability of different land management strategies. Extension workers and farmer participation has helped increase their ownership in management to further raise awareness

of SLM amongst stakeholders. Effective networking and information distribution systems have enabled to:

- Achieve most, but not all, of its objectives within the design timetable;
- Work bottom-up rather than top-down to encourage communication and the spread and ownership of initiatives at operational levels to enhance their integration as mainstream organisation activities;
- Be successfully implemented and conducted within the frameworks;
- Provide resources to support national management activities; and
- Be flexible in the identification of regional expertise to provide short-term training and capacity building support and the scheduling of these inputs.

On the other hand network weaknesses relate to the quality of research issues especially where institutional and individual capacities are weak, where there is questionable commitment on behalf of the network participants to the common goal or when resources are very limited.

Chapter 8 The Way forward (Follow up actions)

- To address Sustainable Land Management (SLM) issues, the support and network are needed and these function very well despite typical differences among topographic sites/areas. Further, scientific and organizational guidance, are needed, including resource and information as well. Long-term leadership is needed to support farmer and provincial wanting to work together;
- Management and communication issues were eased to management and operational structures and to cultural and social differences within these organisations. Effective with activities and interventions managed to encourage counter parting at all levels of each organisation as the lesson. This encourages national ownership of activities, their integration into mainstream national programs; Timely settlement of management and communication issues including social and cultural difference were considered crucial in the overall management decision-making process of the project managers to ensure easy communication and fostering of partnerships at all levels of the organization. This is considered crucial in encouraging national ownership of local activities which need to be mainstreamed into the MAFF budgetary programs planning and implementation.
- Objectives were consistent with and paralleled NAP objectives in term of SLM in order to conduct quality activities;
- This is necessary for long-term sustainability, and the lesson is that uncontrollable externalities are perhaps a greater challenge to long-term sustainability;
- Effective activities in SLM require a dynamic approach that is able to respect interacting biophysical, social and economic factors affecting decision-making by farmers.
- Improving the enforcement of existing laws;
- Developing legal, administrative and technical frameworks to improve security of land tenure; including mapping, state land classification and land title;
- Conducting informational, educational and media campaigns to raise, especially among women, awareness of land rights;
- Finding innovative approaches to promote a better balance between economic exploitation of natural resources and conservation;
- Increasing technical capacity and accountability in natural resource management;
- Increasing public and private investment in water and sanitation as well as in the production and distribution of alternative sources of energy;
- Encouraging energy substitution in favour of greater use of environmentally friendly sources to reduce reliance on fuel wood;
- Promoting alternative livelihoods for communities located near protected areas, to reduce their dependency on forest resources.

REFERENCE

1. Progress report on Soil Fertility Management and Conservation , Department of Agronomy and Land Improvement, Ministry of Agriculture, Forestry and Fisheries, 2006
2. Progress report on Natural Resources Management, Forestry Administration, Ministry of Agriculture, Forestry and Fisheries, 2006
3. Cambodia Millennium Development Goals CSD/GSCSD/PMATU, October 24, 2003
4. Cambodia Millennium Development Goals Report November 2003
5. Annual Conference of Ministry of Agriculture, Forestry and Fisheries for 2004-2005
6. Achieving the Cambodia Millennium Development Goals 2005 Update, October 2005
7. Agriculture and Water Strategy 2006-2010, 11 September 2006
8. National Adaptation Program of Action to Climate Change (NAPA), 20 January 2005
9. Poverty Reduction Strategy, the first progress report, Supreme National Economic Council, Ministry of Economy and Finance Council for Social Development, 25 October, 2003
10. Capacity Building for Sustainable Land Management in Cambodia, 2005
11. Cambodia National Capacity Self-Assessment for Global Environmental Management (NCSA), 2005
12. ASEAN-Japan Project on Multi-Functionality of Agriculture “Rural Viability and Tonle Sap Lake- Based Agriculture in Cambodia, 2005”
13. National Strategic Development Plan (NSDP) 2006-2010
14. Natural Resource and Environment Program, Commune and Community based Natural Resource and Environment Management Component 2004-2007. Ref.No. 104. Cambodia.1.MFS.14
15. UNCCD Website;
16. ICCD/CRIC(5)/INF.3;
17. Government Statement on National Forest Sector Policy 2002;
18. Forestry Law 2002;
19. Forestry Technical Regulations and Guidelines;
20. Criteria and Indicator for Sustainable Forest Management in Cambodia 2005;
21. The RGC Rectangular Strategies;
22. Work Plan of the Technical Working Group on Forest and Environment (TWG-F&E) 2006-2007;
23. Cambodia Forestry Statistics 2004;
24. The Atlas of Cambodia National Poverty and Environment Map (2006);
25. First Five Year Socio-Economic Development Plan (SEDP-I) 1996-2000;
26. Second Five Year Socio-Economic Development Plan (SEDP-II) 2001-2005;
27. National Poverty Reduction Strategy (NPRS) 2003-2005;
28. Cambodia Millennium Development Goals (CMDGs);

29. National Strategic Development Plan (NSDP) 2006-2010.
30. Rectangular Strategy and Development Assistance Needs, November 2004;
31. Agricultural Sector Strategic Development Plan, 2006-2010;
32. Poverty Profile of Cambodia, 2004;
33. Order number 1 BB on curbing of slash and burn of state forests and forest land encroachment for ownership, 2006;
34. Decision number 32 SSR. on curbing of slash and burn of state forests and forest land encroachment for ownership, June 2004;
35. Decision number 23 SSR. on the establishment of provincial sub-committee to curb slash and burn of state forests and forest land encroachment for ownership, July 2004;

ANNEX 1

National Focal Point

Contracting Party	KINGDOM OF CAMBODIA
NATIONAL FOCAL POINT	
Full name of the institution	Ministry of Agriculture, Forestry and Fisheries
Name and title of contact officer	H.E. KOUM SARON Director General of MAFF
Mailing address	#200, Preah Norodom Blvd, Phnom Penh, Kingdom of Cambodia
Telephone	(855) 23 726128/29
Fax	(855) 23 215984
E-mail	
CONTACT OFFICER FOR NATIONAL REPORT	
Full name of the institution	Mr. TUOU SARAVUTH
Name and title of contact officer	Director of International Cooperation Department
Mailing address	#200, Preah Norodom Blvd, Phnom Penh, Kingdom of Cambodia
Telephone	(855) 12 807456
Fax	(855) 23 215 984
E-mail	<i>tuot_saravuth@yahoo.com</i>
SUBMISSION	
Signature of officer responsible for submitting national report	H.E. Dr. CHAN SARUN, Minister for Agriculture, Forestry and Fisheries
Date of submission	December 2006

Status of National Action Plan

Date of validation December 2005	Department of International Cooperation, Ministry of Agriculture, Forestry and Fisheries
NAP review: Final consultation by Cambodian language for submit to the consul of minister for approval	Tentatively August 2006

NAP has been integrated into the poverty reduction strategy (PRSP)	Yes. Poverty reduction strategy is first priority for Rectangle strategy for the government for National Economic and Social Development Plan (2004-2008)
NAP has been integrated into the national development strategy	Yes. NAP has been integrated into the MAFF priority action plan (2004-2008)
NAP implementation has started with or without the conclusion of partnership agreement	Yes. It has been started with the conclusion of partnership agreement.
Expected NAP validation	December 2006
Final draft of a NAP exists	It has been under ongoing.
Formulation of a draft NAP is under way	It has been under ongoing to finally.
Basic guidelines for a NAP have been established	No. However, NAP development should come from learning experience.
Process has only been initiated	Yes.
Process has not yet start	No

Member of Sub-Regional Action Program (SRAP)/Regional Action Program (RAP)

Name of sub-regional and/or regional cooperation framework	Involvement specifically in topics such as water harvesting techniques, soil erosion, soil fertility management, soil improvement, forestry management and conservation etc.
1 Framework for the South East Asia Sub-Regional Action Program for Combating Land Degradation and Eradicating Poverty in Drought Prone, Seasonally Arid and Food In-secure Areas	Sustainable Land and Integrated Ecosystem Management, Particularly in Drought Prone, Seasonally Arid and Food Insecure Areas

Composition of the National Steering Committee

Name of institution	Government	NGO
Ministry of Agriculture Forestry and Fisheries	/	N/A
Ministry of Environment	/	

Ministry of Industry	/	
Ministry of Interior	/	
Ministry of Defense	/	
Ministry of Women Affairs	/	
Ministry of Water Resources and Meteorology	/	
Ministry of Land Management and Construction	/	
Department of Agronomy and Land Improvement	/	
Forestry Administration	/	
Department of International Cooperation		

ANNEX 2

Country Profile

Descriptions	Indicator	Cambodia
Climate		
	Arid area (1000 ha)	0
	Semi-Arid area (1000 ha)	0
	dry sub-humid	0
	total dry land area	0
	average precipitation (cubic km/year)	344.6
Land use and land cover		
	Cropland (sq.km)	75932
	Actual arable land/caput total population	0.5
	Land use, irrigated land (% of cropland)	7.09
	grassland (sq. km)	239
	permanent pasture (1000 ha)	1500
	forest (1000 ha); total extent	10 447
	forest (1000 ha); total extent	9335
	forest (1000 ha); total extent	9896
	natural forest area (1000ha)	9245.1
	natural forest area (1000ha)	9831.1
	Total forest area, percent change	-5.7
	Total forest area, percent change	-2.0
	natural forest area; % change	-6
	forest area; % of original forest	65.1
	Equiv. potential arable land as % of total land	51
	Potential arable land	1.5
	Equiv. potential arable land	1.1
Water		
	total internal renewable (10 ⁹ m3/yr)	
		120.57
	total renewable water resources (cubic m/capita/year)	36 333
	Water withdrawal for agriculture (cubic km)	4
	Irrigation water requirements (cubic km)	1.2
	Industrial water withdrawal (10 ⁹ m3/yr)	
		0.02
Energy		
	Energy consumption per capita (kg oil equiv.)	
	Solid biomass consumption (Thousand metric tons oil equivalent (ktoe))	
	use of solid fuels (biomass);% of people	
Land degradation		
	none	13
	light	2
	moderate	36
	total degradation	4

	severe degradation ('000 sq. km)	0
	Salinization due to irrigation (1000ha)	
	Waterlogged area (irrigated)	
	Waterlogged area (non-irrigated)	
	area with hydro orphic prop. (% of total area)	37
	low CEC (%of total area)	1
	Al toxicity ((%of total area)	53
	high P fixation (%of total area)	9
	Vertical Prop (%of total area)	3
	salinity (%of total area)	1
	sodicity (%of total area)	2
	shallowness (%of total area)	6
	Erosion risk (%of total area)	52
Population and economy		
	rural population (1000)	9077
		10315
		11307
		11694
	Urban population (1000 habitants)	1360
		1843
		2502
		2788
	Hyper arid (pop. Density; person per square km)	
	arid	
	semi-arid	
	dry-sub humid	
	% of total pop in dry land areas	0
	% of total pop under desert. Risk	0
	agriculture value-added (% of GDP)	34.47
	GDP (US\$)	4.13E+09
	GDP growth (annual,%)	5.35
	GNI per capita (US\$)	300
	GNI, Atlas method (US\$)	4.05E+09
	National poverty rate (% of population with less than 1\$)	
		2.2(2001)
		1.5
	Cereal production (metric tons)	4426
	Cattle	3000
	goats	
	sheep	
Human Development		
	Female econ. active pop. in agriculture (1000)	2074
		2360
		2631
		2745
	Life expectancy at birth, total (years)	54.02

	Pop. Growth (annual %)	
		1.74
	Infant mortality rate (per 1,000 live) births	
		97
	Primary (education) completion rate, female (% relevant age group)	
	Primary education completion rate, total (% relevant age group)	
	literacy female (% age 15+)	64.05
	literacy male (%15+)	84.68
	Adult illiterate population (1000)	Cambodia
	Data source (Year)	2004s
	total	2235
	male	620
	female	1615

ANNEX 3

RELEVANT LAWS AND REGULATIONS IN FORESTRY

No.	Laws and Regulations	Year promulgated
1.	Forestry Law	2002 (0802/016)
2.	Governmental Statement on National Forest Sector Policy	2002 (No. 57)
3.	Sub-Decree on The Establishment of Protected Forest (Mondulkiri) for Genetic Resources and Wildlife Conservation	2002 (No. 75)
4.	Sub-Decree on The Establishment of Protected Forest (Preah Vihear) for Genetic Resources and Wildlife Conservation	2002 (No. 76)
5.	Sub-Decree on The Establishment of Protected Forest Cardamom for Watershed and Biodiversity Conservation	2002 (No. 77)
6.	MAFF's Announcement on the Prohibited Wildlife Trade	2001 (No. 3837)
7.	Sub-decree on International Trade on Endangered Fauna and Flora Species	2006 (53)
8.	Sub-decree on Trade Facilitation Through Risk Management	2006 (21)
9.	Sub-decree on Legislative Procedure in Identification, Classification and Enrolment of Permanent Forestry Estates	2005 (53)
10.	Sub-decree on the Establishment and Management of Special Economic Zone	2005 (148)
11.	Sub-decree on Economic Land Concession	2005 (146)
12.	Joint Inter-ministerial Declaration on the Promulgation of MAFF) Forest Revenue Management System	2004 (609 MEF/472)
13.	Sub-decree on Social Land Concession	2003 (19)
14.	MAFF's Declaration on Logging Moratorium of Forest Concessions	2001 (No. 5721)
15.	MAFF's Declaration on Prohibition of Yellow Vine Harvesting, Collecting, and Processing	2001 (No.180)
16.	MAFF's Declaration on Limitation of Maximum Weight of Forest-product-load Vehicle for Transportation	2001 (No. 527)
17.	Inter-Ministerial Joint Circular on Rate of Payment for MAFF) Forest Protection and Maintenance	2000 (007 MEF/339)
18.	DFW's Instruction on the Supply of Timber Products for Local Consumption	2000 (No. 142)
19.	MAFF's Circular on Prices of Forest Products	2000 (No. 430)
20.	Royal Decree on The Establishment of Ang Trapeang Thmor Sarus Crane Conservation Area in Phnom Srok District, Banteay Meanchey Province	2000 (No. 0200/110)

21. Sub-Decree on Forest Concession Management 2000 (No. 05)
22. Sub-Decree on The establishment and TOR of the Ministry of Agriculture, Forestry and Fisheries (MAFF) 2000 (No. 17)
23. Governmental Declaration on The Measures to Control and Suppress Anarchic Activities in the Forestry Sector 1999 (No. 01)
24. Governmental Declaration on The Measures to Suppress Anarchic Activities for Land Encroachment 1999 (No. 06)
25. Royal Decree on The Establishment and Management of the Watershed in Cambodia 1999 (No. 0199/07)
26. Sub-Decree on The Amendment of Natural Resource Management for Preak Tueksap Area, Sihanouk Ville Municipality 1998 (No. 70)
27. Governmental Decision on Forest Product Prohibited and Allowed for Export and Identification of Export Check Points 1997 (No. 17)
28. Sub-Decree on The Establishment of the National Committee to Manage and Execute Forest Management Policy 1996 (No. 33)
29. Governmental Declaration on The Prohibition of Export of Round Logs and Sawn-wood from Cambodia 1996 (No. 02)
30. Inter-Ministerial Declaration on The Suppression of Wildlife Destruction in Cambodia 1996 (No. 1563)
31. Inter-Ministerial Declaration on Royalties and Log Prices for Buying and Selling at Export Check Points 1995 (No. 100)
32. MAFF's Declaration on Wildlife species prohibited for hunting 1994 (No. 359)
33. Royal Decree on Protected Areas for Nature 1993
34. MAFF's Declaration on Trees species prohibited for harvest 1993 (No. 032)
35. MAFF's Announcement on Instruction for the Implementation of MAFF's Declaration no. 092 dated 11 Oct 1989 on Establishment and Management of Sawmills, Wood Processing Factories, Workshops and Handicrafts, Charcoal Kiln and Wood Product Whole-sale and Retailed Shops 1991 (No. 1817)
36. Sub-Decree on Forest Coupe Bidding for Harvesting 1991 (No. 11)
37. Inter-Ministerial Joint Circular on Rate of Payment for Forest Protection and Maintenance 1991 (004MEF/151MAFF)
38. Ministerial Council's Decision on Forest Revenues for Forest Protection and Maintenance 1991 (No. 39)
39. MAFF's Declaration on the Rules of Forest Coupe Bidding for Harvesting 1991 (No. 288)
40. Ministerial Council's Decision on Arbor-day 1990 (No. 08)
41. Inter-Ministerial Declaration on The Use of Standard Letter for Forestry Offences 1989 (No. 071/21-89)

- | | | |
|-----|---|-----------------|
| 42. | MAFF's Declaration on the Establishment and Management of Sawmills, Wood Processing Factories, Workshops and Handicrafts Using Raw Materials of Forest Products, Charcoal Kilns, and Depots for Forest Product Trade belonging to the State, State-private and Private Entities | 1989 (092) |
| 43. | MAFF's Decision on Technical rules of pre-harvesting | 1988 (No. 0036) |
| 44. | Ministerial Council's Decision on forest products Export-Import | 1988 (No. 274) |
| 45. | MAFF's Decision on TOR of the DFW | 1986 (No. 608) |
| 46. | MAFF's Decision on Classification of tree species and minimum size allowed for harvesting. | 1986 (No. 050) |
-

ANNEX 4

TWG-F&E Work Plan Milestones for 2006

POLICY STATEMENT: RGC is promoting the sustainable forest management and conservation for socio-economic benefit of the Cambodian people						
	OUTPUTS	ACTIVITIES	INDICATORS	TIMING (Schedule)	Implementing Institutions L: Lead S: Support	Funds requirement R: RGC D: Donor
1	OBJECTIVE	<i>The forest resources of the country are considered as Permanent Forest Estate and managed by promoting conservation and sustainable forest management initiatives that directly contribute to the rehabilitation and conservation.</i>				
	MAJOR DEVELOPMENT ELEMENT	1. Strengthening forest resource management and conservation				
1. 1.	<u>NATIONAL FOREST PROGRAM</u> with internal coherence and linked with national policies	1.1.1 Develop relevant forest programs under the NFP	1.1.1 All programs under the FA developed, linked with national policies disclosed and translated. Stakeholders involved	1.1.1 2006	1.1.1 L = FA S = Donor to be identified	
1. 2.	<u>Forest Management Program</u> Major part of the natural forests rationalized, reclassified and dedicated to their ecosystems protection and biological conservation functions	1.2.1 Practical implementation of forest demarcation and demarcation of protected areas	1.2.1 One million hectares per year	1.2.1 2006	1.2.1 L = FA, MoE S = MEF	R:D = 50:50
		1.2.2 Formulate National Forest Management Plans and manage the forests based on the Plans	1.2.2 NFMPs formulated and implemented at FA Division levels	1.2.2 2006	1.2.2 L = FA	R:D = 50:50
		1.2.3 Develop Management plans for protected areas	1.2.3 Management plan for protected area formulated and implemented	1.2.3 2006	1.2.3 L = MoE	R:D = 50:50
		1.2.4 Forest Cover Assessment 2005	1.2.4 Maps and percentage identified	1.2.4 2006	1.2.4 L = FA	
		1.2.5 Forest Management Options and Strategies identified and analysed	1.2.5 Concept paper + strategy	1.2.5 2006	1.2.5 L = FA S = Donors	
1. 3	Implemented the strict application of Codes of Practices as regulatory framework for sustainable management of forest resources, including concession forest	1.3.1 Studies of domestic demand for forest products and potential export markets	1.3.1 Statistical reports on domestic demands and potential market for forest products	1.3.1 2006	1.3.1 L = FA	R:D = 50:50

1. 4	<u>Forest Law Enforcement Program</u> Strengthened enforcement of forestry law, especially in combating forest land clearing and encroachment	1.4.1 Continue Forest and land Crime Monitoring and Reporting and improve cooperation between the FA and MoE's monitoring systems	1.4.1 Forest Crime activity is reported and suppressed	1.4.1 2006	1.4.1 L = FA, MoE, LMAP, LASSET, M. of Justice	R:D = 50:50
---------	---	--	--	------------	--	-------------