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**KINGDOM OF CAMBODIA
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UNCCD

THE NATIONAL REPORT ON THE CONVENTION TO COMBAT DESERTIFICATION

**Ministry of Agriculture,
Forestry and Fisheries**

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THE NATIONAL REPORT ON THE CONVENTION TO COMBAT DESERTIFICATION

FOREWORD

Among 80% of 12.7 million of Cambodian population are farmers engaged in agricultural activities. Agricultural sector has contributed about 43 % of the total Gross Domestic Product (GDP). In this connection the second mandate of the Royal Government of Cambodia led by Samdach **HUN SEN**, Prime Minister, has taken Agriculture as a core foundation for rehabilitation and reconstruction of Cambodia economy because agricultural sector provides the major source to development of other sectors.

However, the long period of time of land use, deforestation and soil erosion led to unfertilized and damaged soil cause serious impact to the agricultural productivity and environment such as irregular draught, flood, increasing temperature and irregular rainfall etc.

The most important objective of the convention is to combat desertification occurring in the dryland regions of the world and to mitigate the effects of drought. Desertification is due to complex interactions among physical, biological, social, cultural and economic factors. Desertification impacts the social and economic development not only the region, but also the countries as a whole.

Desertification and drought affect the sustainable development through their interrelationships with important social problems such as poverty, poor health and nutrition, lack of food security, and those arising from these such as migration, social conflicts and unrest. The convention emphasises the need to address these in an integrated manner.

Presently, Department of Agronomy and Soil Improvement and Department of Forestry and Wildlife have been carrying out the above activities, but it is not enough to run the current socio-economic condition for increasing agricultural productivity in order to eliminate poverty.

At the same time, the improvement of soil fertility and reforestation for protection of soil erosion will also contribute to the National environment as well as Regional and International environment.

This National report reflects the status of the land use and its changes, the mitigation of drought and flood, the implementation of the national policies, the collaborative activities with international agencies and the future policy recommendations on the implementation of the convention to combat the desertification in Cambodia.

The findings in this report will be useful for the Royal Government of Cambodia and international community and/or donors to understand the Cambodia's past and current ecosystems, the impacts and the current strategies takes toward and/or the future policy recommendations to target the sustainable development with an environmentally friendly

manner.

This report is a result of the close collaboration between the pipe line ministries the Ministry of Agriculture, Forestry and Fisheries (MAFF) and Ministry of Environment (MoE). The ministry gratefully acknowledges the funding support to the preparation of this report and for organizing the National Workshop on the Preparation of National Report on the Convention to Combat Desertification, provided by UNCCD-Secretariat in Bonn and UNDP, Cambodia that provided a close mediation between core ministries and UNCCD-Secretariat.

The publication of this report will contribute greatly to improve our understanding of Cambodian ecosystems and its changes toward our activities and identifying and/or foreseeing the negative multiplier causes, that affect the long-run sustainability economic development, thus providing a basic for a comprehensive environmental protection strategy and policy framework.

CHAN SARUN
Minister

I. Introduction:

1. General geographic Conditions

Cambodia is located in South East Asia. The total area of the country is 181,035 sq. km², comprising 20 provinces and three municipalities.

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 card omen 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.

The Mekong River rises and falls approximately 9 m each year, the height of which is influenced by melting snow in the Himalayas and rainfall in China (Nesbitt 1997). Myanmar, North Vietnam, Lao PDR and Thailand. In Cambodia, it passes through the province of Steung Treng, Kratie and Kampong Cham until it converges with Tonle Sap at Phnom Penh. When it reaches Phnom Penh, the water divides to flows down both Mekong and Bassak rivers to Vietnam. As the river rises, some water also flows back up to Tonle Sap Lake. The Lake can expand tenfold in area to approximately 25,000km² between the month of May and November. Receding water from the large reservoir flows primarily down the Bassak and Mekong rivers and feeds many irrigation areas in Kandal, Prey Veng and Takeo.

At the beginning of the wet season, farmers who possess land suitable for deepwater rice plow their soil and broadcast rice seed. In ideal seasons, these crops receive sufficient local rainfall to allow 6 or more weeks of growth before mid-July.

Flooding rivers also flow up hundreds of small rivers and channels connected to lakes and small ponds. The lakes are allowed to flood during the wet season and, as the main river begins to recede, the access ways are blocked off with barriers erected by farmers to retain the water for dry season crop production. Crops are planted along the edges of the flooded areas and, as the water recedes during the dry season, water is pumped back onto the crops where possible.

Heavy silt loads in the Mekong River assure annual fresh deposits of fertile soil over the deepwater and recession rice areas.

1.1. MAJOR 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. The movement of humans to live in cities, towns and villages is known as urbanization. These towns and cities can be described as urban ecosystems.

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 1,500-2,000mm in the lowlands and higher than 3,000mm in the uplands. The dry season is four months long, December to March. Most of the land is still covered by forests (see attached annex-1).

1.2. RICE ECOSYSTEMS OF CAMBODIA

The rice ecosystems are among the most important terrestrial ecosystems to the Cambodian population in terms of food security. As in any other ecosystem there are living and non-living components and rice is undoubtedly the most important living component of the ecosystem. Rice ecosystems in Cambodia as in elsewhere are influenced by rainfall/flooding patterns, soil suitability and the country's topography. As a result Cambodian rice growing ecosystems can be grouped into the following broad categories:

1.2.1. Rainfed Lowland Rice

Rainfed lowland rice represents 86% of the total annual rice cropping area of Cambodia. It is characterized by flat bounded rice fields which depend almost entirely rainfall or surface runoff for their water supply.

1.2.2. Deepwater or Floating Rice

Deepwater rice areas can be classified as low lying areas and depressions that accumulate flooded water to a depth of between 50cm and a maximum of 3m for at least one month during the growing period. Deepwater period rice production areas accounts for only 4% the total annual rice cropping area in Cambodia. These areas are located mainly around the Tonle Sap Lake and along Mekong and Basac rivers.

1.2.3. Rainfed Upland Rice

The area under rainfed upland rice cultivation accounts for 2% of Cambodia's total annual rice cropping areas. Upland rice areas are unbounded fields in the mountainous and rolling hill areas of Cambodia (Mondulkiri, Rattanakiri, Kratie, Koh Kong, Kampong Cham and Kampong Thom). In the shifting cultivation areas of the Northeast of Cambodia upland rice is an integral part of the "chamkar- farm". The ethnic minority groups practice this type of cultivation is almost exclusively. Permanent upland rice production is commonly practiced by Khmers where a field of rice is grown annually either on it's own or as an inter-crops or in rotation with other upland crops.

Noteworthy to emphasize that base upon such kind of shifting cultivation (swidden or slash and burn culture) has destroy many thousands hectares with an average estimation of 5,000 ha/each province of 19 in single year not included the calculation from some targeted provinces, where the non-sustainable harvesting are very intensive.

1.2.4. Dry season Irrigated Rice

Dry season production accounts for 8% of the total cropping area in Cambodia. The distribution of dry season production is primarily in those areas close to the major rivers and their floodplains. Dry season rice production is associated with higher yields than wet season production due to higher solar radiation, better water control and the cultivation of more fertilizer responsive varieties.

1.3. Nutrient Calculation

The nutrient calculation in rice fields is governed by the various nutrient cycles (carbon, phosphorus, nitrogen cycles etc.). There is still a net deficit being returned to the various nutrient cycles. This nutrient deficit results in a need to supplement the natural cycle by adding inorganic fertilizers such as Urea, DAP, NPK...etc.

1.4. WETLANDS

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%.

1.5. RIVERS 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 Myanma, 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.

The Tonle Sap Lake, also known as the Great Lake, lies in the center of Cambodia and is connected to the Mekong River at the Chak Tomuk by the Tonle Sap River. The Great Lake is the largest permanent freshwater lake in Southeast Asia. The Tonle Sap -Mekong River system has a unique hydrological feature. Each year during the wet season the Tonle Sap River reverses its direction allowing the flooded water of the Mekong to flow into the Great Lake.

II. THE STATUS OF LAND USE AND ITS CHANGES

2.1. LAND USAGE AND FERTILIZER USE

2.1.1. Land Usage

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.

The main constraints rely to soils in crop production in Cambodia are:

- The lost soil fertility in cultivated areas cause from poor soils management and cultural practices.
- Devastation and its erosion cause from the process of deforestation and shifting cultivation of ethnic groups in uplands slope.
- Drought and flood cause to soil degradation and erosion.
- High concentration of acidity and/or salinity in some dry season rice production areas.
- Large change fluctuation of environment as increase big gape of temperature causes to soil moisture content and soil fertility.
- Farmers have a very limited input to improve soil fertility.
- Low literacy causes the constraints to adopt the new modern technology to improve soil fertility.
- Unavailability of credit in rural areas to purchase fertilizers
- Poor fertilizer application and use cause the destruction in soil structures and soil texture.
- Lack of irrigation systems, poor water management and poor drainage.

- Lack of mechanization for land preparation and other farm management.
- Relatively poor research and extension on soil conservation and improvement
- Poor extension services on soils and lands management.
- All inorganic fertilizer are imported
- Lack of registration to control fertilizers and pesticides
- Lack of draught power for land preparation and providing organic manure
- Farmers are grown mono-culture and single crop per year
- Lack security discourages farmers from settling in large areas, land mine in many parts of the country prevent cultivation

2.1.2.Fertilizer Use

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 mach to the rice growing areas the fertilizer use in Cambodia will likely to continue to increase.

III. THE IMPACT ASSESSMENT TOWARDS HUMAN ACTIVITIES

In Cambodia, the major root causes of soil erosion are deforestation, 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 is sediment 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.

IV- THE IMPLEMENTATION OF THE NATIONAL POLICY

(Legal, Institutional and Management Aspects)

4.1. LEGAL ASPECTS

4.1.1. Legal Development Since 1993

The constitution of the Kingdom was adopted in September 1993. This established a judiciary separate and independent from the executive and legislative branches of the government.

The new government, elected in 1993, is rewriting Cambodia legislative and regulatory infrastructure. The new laws and regulations are based on legal principles from common law, combined with aspects of the pre-1995 French Civil code. Cambodia has recently been accepted as the membership of ASEAN, and attempts will be made to ensure that its laws parallel those of other member countries.

Over two dozen laws have been adopted since 1993, including the land management, urbanization and construction law, and the laws establishing the rights and responsibilities of various ministries. There are many other laws that are still awaiting execution by Parliament.

4.1.2. Legal Adoption Processes

Most major ministries prepare legislation. Prior to its reading in Parliament, it must be approved by the Council of Ministers (COM). Both these requirements have caused delays in legislation, adoption being approved over the past few years, as the COM or the Parliament fail to sit and consider the draft decrees.

4.1.3. Major Issues

Apart from instability and the destruction of the legal systems in the past two decades, to others factors have hampered the improvement of the legal framework. The first is significant lack of resources in financial (e.g. salaries), physical (e.g. courtrooms, equipment, supplies) or human (e.g., qualified and skilled personnel) terms. Secondly, the present imperfections in the political system often adversely impact on the program of legislative reform. The sharing of executive power by two opposing parties generations obstacles and a politicized senior bureaucracy, resulting in a lack of coordinated legislation.

4.1.4. Environment Laws

Existing environment law notes that it is the stated policy of the Kingdom of Cambodia: To promote economic development that conserves and rationally uses natural resources, and protects and enhances environmental quality in order that the Nation achieves sustainable development. Development that enable Cambodian society to satisfy its current needs with outcome promising the ability of future generation.

That development planning and decision making processes integrate environmental information concerns and considerations at the earliest possible stages, so that adverse environmental impacts are avoided and that this integration be achieved through implementation of Environmental Impact Assessment (EIA) processes.

That the people of Cambodia are a valuable source of environmental knowledge, and that their concerns should be considered in the decision making process through public participation and information dissemination processes.

4.1.5. Existing Legislation Related to Environmental Management

The development of environmental legislation is one of the National priority and, at present, the law on Environmental Protection and Natural Resources management can be considered the framework for subsequent sectional laws, decrees, sub-decrees, and regulations for environmental protection and natural resources management.

The legislation is believed to cover most important sectors that have been and/or' being addressed to data. It is separated into pre-1993 (when the new government was formed) and post-1993.

4.1.5.1. Decree -law on the management of fishery areas

This law (state council No 33) passed Seri 1987, defines fisheries categories, fishing areas and season.

Decree -law for the management of the forest area

Prohibited, with enforcement by the Department of Wildlife, and any person violating the law shall be fined or imprisoned according to the seriousness of the violation.

4.1.5.2. Law of Land Management, Urbanization and Construction

This law, passed by the National Assembly soon after its formation, elaborates the law's intent and states in matters directly impacting the natural environment.

4.1.5.3. Law on Investment

The National Assembly passed this Law in 15 December 1993. Foreign investment in Cambodia is a simple, fairly open process. Cambodia does not differentiate between investment projects undertaken by foreigners of residents, as the investment law of 1993 governs both. Some sectors are restricted to nationals including -import -export, and some transport, construction, accounting and law related activities.

The Cambodian Investment Board (CIB), operating within the Council for the Development of Cambodia (CDC) is the Government agency responsible for granting investment incentives and approving projects. Under the Investment law, the CDC is the sole and one stop service organization responsible for investment activities.

4.1.5.4. Law on Environmental Protection and Natural Resource Management

This law had passed into the National Assembly on November 18th, 1996. And promulgated by the King on December 24th, 1996. In response to that the war just came to an end in 1999, the national park, protected areas for wildlife and biodiversity... etc. All of those are seriously in destructive conditions, and seeking for both external and local credits for re-inventory and further solid measures for rehabilitation and sustainable natural resources development.

4.1.5.5. Sub -Decree on Construction Permission

National Assembly passed this Sub-Decree in 1997, to be managed proper of land use and natural resource.

Areas System includes national parks, wildlife sanctuaries, Protected landscapes and Multiple use Management Area.

4.1.5.6. Forestry Law

It was adopted by the government and reviewed by the specialized commission of the National Assembly before sending it for vote by the plenary session of the parliament. The new and concise forest law will be vote by the plenary session of the parliament by the end of 2000.

If the forest cover areas are strictly controlled, it can be very important role for agricultural cropping improvement or vice versa.

4.1.5.7. Sub -Decree on Environmental Impact Assessment

The draft Sub-Decree specifies environmental review process 1- screening; 2- initial environmental impact assessment, and 3- full-scale environmental impact assessment. As specified in the Environmental Law.

4.1.5.8. Sub -Decree on Water Pollution Control

Establishment of the Draft Sub-Decree on Water Pollution Control is finalized and being revised by the Ministry of Environment (MoE).

The purpose of this Sub-Decree is to control the effluent discharge and require the MoE to set up standards of water quality and effluents.

4.1.5.9. Sub -Decree on Protected Area Management

The purpose of this Sub-decree is to implement the law on environmental protection and natural resource Management and especially to implement the Royal Decree on 1st November 1993. At present the MoE face problems of how to prevent violations in the protected areas and problem of management process of protected areas.

4.1.5.10. Sub-Decree on Agrochemical Use and Management

The Ministry of Agriculture prepared it in cooperation with Ministry of Environment. This Sub-Decree focus on provision of pesticide fertilizer and other agro-chemical substances uses. Right now is waiting for approval from Council of Ministers.

4.2. The strategies and priorities established within the framework of sustainable development plans /or policies and achievement

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.

Obstacles to achieving this objective remain, but the RGC's policy reform program in Forestry under direction of Prime Minister **Samdech Hun Sen**, and with active participation from all levels of National Institution of Government, local authorities, and the support of the international community and has achieved significant progress.

4.2.1. Forestry

- The development of a new forestry law that currently awaits passage by the National Assembly.
- The implementation of a forest concession management reform process that requires each forest concessionaire to prepare forest concession management plans consistent with international standards, and to renegotiate a model forest concession investment agreement.
- The preparation of a sub-decree on community forestry developed in a participatory manner to enhance the local community participation in forest rehabilitation, reforestation, and biodiversity and wildlife conservation activities.
- The issuance of a Declaration (Prakas) by the Minister of Agriculture, Forestry and Fisheries suspending logging activities in 2002 until such time that forest concessionaires would have an approved strategic forest management plan and a renegotiated forest investment agreement.
- A reduction in the incidence of illegal logging activities and accelerating implementation of the Forest Crime Monitoring and Reporting Project.

4.2.2. Activities and Achievements

4.2.2.1. Forestry Law

The preliminary draft of the new forestry laws was initially prepared with technical assistance provided by the Asian Development Bank (ADB). This draft was distributed widely to stakeholders, including international organizations (OIs) and non-governmental organizations (NGOs), for review and comment. In July 2000, a participatory workshop to discuss the draft was organized.

In order to coordinate effectively successive revisions of the draft that were to occur, the RGC utilized funds provided by the Japanese Government that are managed under the World Bank (WB) fund Forest Concession Management and

Control Pilot Project (the LIL), to ensure the services of a legal advisor to assist the RGC in this process.

The legal advisor in collaboration with a technical working group that was established within the department of Forestry and wildlife (DFW) develop a participatory process to incorporate stakeholders comments and to revise the draft in a manner consistent with the Constitution and other existing laws and legislation including the immovable Property Law (the Land Law), that were, or still are in the process of being developed.

The final version of the draft was submitted by the MAFF to the council of Ministers for approval. In order to maintain transparency throughout this process, the English language version of this draft was distributed widely to stakeholders in the international community.

With welcome supports from the fifth Consultative Group (CG) meeting in June 2001, Tokyo, the draft Forestry law was consulted and discussed at nineteen (19) inter-ministerial meetings prior to its adoption by the plenary session of the Council of Minister on 20 July 2001. The draft of the law was officially submitted to the National Assembly for ratification, with a request for urgent action, on 17 August 2001. It is currently under discussion by a technical committee of the National Assembly, with approval expected in year 2002.

4.2.2.2. Law Enforcement and Forest crime monitoring and reporting

In 2001, the Royal Government of Cambodia has made a significant achievement in cracking down of illegal forest and wildlife activities as follows:

- Impounded 7,182 m³ of logs and 764 m³ of sawn timber
- Destroyed 158 sawmills and several yellow wine processing mills and charcoal kilns
- Confiscated 3,406 wild animals and 1,093 kilogram of snakes and other reptiles many treated at Phnom Tamoia Wildlife Rescue Center prior to their return to the wild
- Arrested 73 violators
- Compiled supporting information to send to court 239 cases
- Collected 197 million riel (Cambodian Currency) and 15,500 UD\$ in fines.

It was a difficult year for the Forest Crime Monitoring and Reporting Project. In 2001, the project experienced several slowdowns, related particularly to the need to establish appropriate reporting protocols, and the absence of a project budget from March to October.

In an effort to strengthen the effectiveness of project implementation now that the project is once more at full strength, the Department of Forestry and Wildlife has introduced the following measures:

- Revised the project staffing structure in June 2001 to maintain project operations during the period of the project's restricted budget and absence of technical

advisors. This structure was subsequently revised again in December 2001 to assign staffing position consistent with the amended project document.

- Established a working group that will meet on a regular basis to improve information exchange and resolve internal differences between project components. The working group is composed of representatives from the DFW and Ministry of Environment (MoE), the office of the focal point coordinator of the Council of Ministers, Global Witness, the chief technical advisor of the Forest Crime Monitoring and Reporting Project, and the project advisor of the Forest Concession Management and Control Pilot Project, and
- Confirmed the use of a bar-coding system in combination with the legal hammer stamping system to strengthen the capacity of monitors to enforce the chain of custody of logs removed from forest. This bar-coding system, which will be procured using funds provided through the World Bank is expected to be operational by mid-2002.

4.2.2.3. Sub-Decree on Community Forestry Management

With technical support from the Cambodian-German Forestry Project (CGFP), Sustainable Management of Resources Project (SMRP) funded by the German Technical Cooperation (GTZ), and Concern Worldwide, a Task Force to re-draft a community forestry sub-decree was established in June 2001. The Task Force, assisted in its efforts by a legal advisor provided through the Cambodian-German Forestry Project, has organized fourteen (14) meetings to discuss the details of the sub-decree.

Participants included provincial representatives and representatives from the NGOs forum. The task force is currently soliciting comments on a draft of the sub-decree from the government, international organizations, and other stakeholders. It is expected that there will be several more meetings before the sub-decree will be finalized.

The Ministry of Agriculture, Forestry and Fisheries is very supportive of this sub-decree and has extended its cooperation to other organizations and donor agencies associated with community forestry programs in Cambodia.

This cooperation extends to the following programs:

- Initiated an internal working group for the formulation of national forest policy, which is currently preparing a statement based on the expected forthcoming forestry legislation;
- Encouraged activities towards the development of a National Forestry Program according to IPF proposals, leading to MAFF/DFW submitting its first communication to UNFF;
- Undertook an analysis of the proposed forest administration, which will lead to the identification of possible mandates, responsibilities and role for the future;
- Provided financial support for DFW staff to attend international forums, training, workshops and seminars related to forestry & wildlife issues;

- Support MBA studies of senior DFW staff (10 people); Initiated linkages between the forestry higher education establishments in Cambodia, Germany and Laos.
- Began a compilation and analysis of community forestry initiatives within Cambodia and neighboring countries, which will feed into the development of a forestry extension strategy for Cambodia;
- Facilitated the development and implementation of a work plan for capacity building and forestry extension activities in Kompong Speu province, towards the establishment of community forestry in degraded forest areas;
- Began the process of establishing a second pilot site in Kompong Thorn province, in relation to the promotion of community forestry in cancelled forest concession areas;
- Financial assistance to the development of forestry extension materials to support of the activities conducted.

In order to facilitate the expansion of community forestry activities in Cambodia, the DFW plans to:

- Establish a national community forestry program with supported from the Cambodian-German Forestry Project and Sustainable Management of Resources Project MRC/GTZ.

4.3. Forest Rehabilitation and Reforestation

In February 2001, the DFW in collaboration with experts from JICA, organized a workshop to discuss strategies for forest rehabilitation in Cambodia. JICA supported the distribution of 120,000 trees to local communities. With technical assistance from JICA expert, the working group for Forest Rehabilitation was formed within DFW and developed the strategic plan through various activities including a workshop held in July 2001, and the DFW official Web site was developed under the cooperation of Japan Overseas Cooperation Volunteer (JOCV) member.

Moreover, JICA has decided to operate a technical cooperation project on Capacity Building in the Kingdom of Cambodia with Department of Forestry and Wildlife under Ministry of Agriculture, Forestry and Fisheries. Its duration is three years from December 16, 2001. This project aims at strengthening DFW's institutional and its staffs capacity to manage forestry administration effectively, and at improving technologies required necessary for restoring forest resources and transferring it to the identified target group. Through several studies conducted by JICA under GOJ, JICA and DFW have learned that the technical cooperation should focus on two needs:

- 1) The DFW be strengthened for its institutional and staff's individual capacity on forestry administration, including the coordination and management of various activities by various donors.

- 2) Technology necessary for restoring forest resource, sustainable forest management, and community forestry should be improved and transferred to the target groups, such as the DFW staff, provincial office staff, NGO staff, and rural people.

In order to meet these requirements, JICA is to provide this technical cooperation project with human resources, equipment, and materials necessary for activities conducted in accordance with DFW. JICA input include: construction of training center building, 3 Japanese long term experts(a chief advisor, a training officer and a coordinator) and some short term experts, computers, equipment, materials, vehicles and so on.

MAFF/DFW is also implementing the Cambodia Tree Seed Project (CTSP) funded by DANIDA. The development objectives of this three-year project are to provide genetically suitable seed of good physiological quality from well-managed seed sources of priority woody species to meet the need for tree planting activities in Cambodia.

The immediate objective is to development of the institutional capacity of the national tree seed sectors in Cambodia with special emphasis on indigenous species and regional cooperation. The project has an extraordinary opportunity over the coming years to establish model in-situ gene conservation plots and seed sources as well within as outside logging concessions. These initial periods have characterized by training and upgrading of DFW and provincial staff. A seed laboratory is in the process of Reforestation Office of DFW has been carries out.

4.4 Natural resources conservation

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

4.4.1. Central Cardamom Conservation Program

The MAFF has proposed a considerably large area (330,923 hectares) of primary forests of the Central Cardamom for protection as a forest reserve for biodiversity conservation. In order to support this proposal, the MAFF issued Declaration number 22, dated 22 January 2001, to suspend forest exploitation, with the exception of the collection of forest products for local use, commercial harvesting, the clearing of forest estates, and wildlife hunting in this area. The purpose of the declaration was to encourage research on the area's biodiversity that could be used as a basis for formulating 'a sub-decree declaring these lands to be a conservation area. In January 2001, a Memorandum of Understanding was signed with Conservation International (CI) to implement the declaration.

The MAFF/DFW, with funding from CI, has subsequently established a program entitled Central Cardamom Conservation. This program is currently implemented by a Program Advisor, a Program Manager, and more than seventy rangers. In February 2002, additional operations posts will be established on the other sides of the Central Cardamom to control illegal forest and wildlife activities. The implementation of program activities has already significantly reduced illegal forest activities in the Southwest of the Central Cardamom.

4.4.2. Wildlife Conservation Program

The DFW is planning to reserve two additional large areas for wildlife sanctuaries. These areas are in: (1) Mondolkiri province adjacent to the Vietnam border in an area that would be a particularly important sanctuary for several endangered species, including the tiger, elephant, Ko Prey, and wild buffalo; and (2) Preah Vihea province in an area that would be an especially important sanctuary for the endangered Pavomuticus and Ko Prey.

V. Land Resources

5.1. Status of 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 require 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.

The total land area of Cambodia is 181,035 km². Land management and used in many different ways, as is shown in Tables 1 and 2.

Table 1: Land Management

Type of Land Cover	Area (km ²)
Forest	112,842
Paddy Field	26,097
Other Vegetation	25,057
Upland Crop	4,665
Water Surface	4,111
Shifting Cultivation	856
Plantation	746
Barren Land	336
Field Crops	299
Receding Rice	293
Orchards	188
Urban Area	45
Total	181,035

Table 2: Area of Land Use (Million hectares)

Land Use	1992/93	1996/97	Change
Forest	10.86	10.64	-0.22
Agriculture	3.69	3.90	0.21

Grassland	0.48	0.49	0.01
Scrubland	2.20	2.52	0.32
Urban	0.03	0.03	0.00
Wetland	0.54	0.55	0.01
Others	0.36	0.02	-0.34
Total	18.15	181.15	0.00

5.2. National Development Plan:

In the second mandate (1998-2003) of the Royal Economic Government of Cambodia has continued the policy to ensure the food security and nutrition, to alleviate the poverty with the priority given to the organization and rehabilitation of infrastructure, to promote the domestic product. Especially, to upgrade and expand the irrigation system and cultivated areas, to reform the land title and to establish an effective system of micro-finance for providing credit to farmers.

In public Investment Plan 1996-2000, the government of Cambodia allocated a total budget US\$ 2.2 Billion for social and economic development (see in table 2).

Table 1: Sectoral Allocation Targets for Public in Investment:

Sector	Rural proportion, %	Urban proportion, %	Sector proportion ; %	Total, US\$ million
Agriculture	97	3	10	220
Manufacturing and Mining	25	75	4	88
Transportation and Communication	85	15	23	506
Electricity	26	74	8	176
Water supply and sanitation	25	75	8	176
Education and Training	70	30	11	242
Health	75	25	10	220
Social and communities services	70	30	7	154
Religious and Cultural Affairs	60	40	3	66
Administration/ Special programmes	50	50	11	242
Unallocated	65	35	5	110
Total	65	53	100	2,200

The Royal Government of Cambodia has established development policies, which are used as a guideline for overall economic development, which is free or urban-rural bias, and is protective of natural resources and environment. These stated development policy include:

- Extend health, education, and social services to entire population so as to ensure, within a decade, a substantial improvement in the standards of living.
- Improve rural living by promoting rural development as a central feature of the government's development priorities;
- Ensure that the pattern of development is sustainable socially, politically, fiscally and environmentally.

5.3. Present status of Cambodia:

Achieving sustained increasing in economic growth and significant reduction in rural poverty depends fundamentally on improving the contribution to GDP of agriculture and sub-sectors of crops, livestock, fisheries and forest as well as related downstream processing industries. To maximize agricultural output the sector needs to raise productivity and reduced the impact of structural constraints such as inadequate transport infrastructure and weak control of water resources that reduce terms of trade and exposure to risk. Sustained increases in productivity are possible of the high potential for increases crop production by using technologies and capital. Over the medium term, will build on existing reforms and focus on most pressing constraints to agricultural growth and rural development.

Rice is the staple food of the population in Cambodia and accounts for 68-70 percent of daily calorie intake. The remainder is derived from fish, maize, root crops, fruits and vegetables. Though, 21.8 percent of household expenditure on food (including own-produced supply) is spends on meat, poultry fish and 15.5 percent on rice, rice availability is the key factor in food security.

In 1998, a total of rice area 2.0 million ha and production of paddy was 3.5 Million tones.

Food crops, other than rice, are also grown through out the country. In terms of maize is most important subsidiary crop with 49,000 ha in 1998 followed by 36,000 ha of vegetables, 27,000 ha mung bean, 33,000 ha of soy bean, 10,000 ha of cassava and 16,000 ha of sesame. Production of most of the non-rice food crops has slightly declined imports one quarter of domestic demand for vegetables. In preparing food availability estimates, the Royal Government of Cambodia has assumed that 100,000 tones of equivalent food can be derived from these crops. Cambodia had rice surplus about 104,000 mt in 1998.

As regards livestock and fish, between 1993 and 1998 the number of pig is estimated to have increased by 17,5 percent, cattles by 6.5 percent and poultry by 39 percent and fish by 32 percent.

5.4. Policy and rural development

In recent years, agriculture reforms have focused on removing state responsibility for production to market-based agriculture resulting in land reform, price liberalization and the adoption of legislation to permit joint ventures between the state and foreign investors. Extension services have expanded largely in research on rice varieties with the support of AusAid. The Ministry of Agriculture, Forestry and Fisheries (MAFF) was recognized in collaboration with FAO and additional capacity building of MAFF is currently being provided by the World Bank under it's Agricultural Productivity Improvement Project. Under the ADB's ongoing Agricultural sector Programme the Government has been taken action for (a) wider

dissemination of agricultural marketing and technological information, (b) liberalization of fertilizer pricing and marketing, (c) formulation of rural finance strategy, (d) divestment of rubber sub-sector, and (e) establishment of local rural development committees.

The Government of Cambodia set up clear objectives for development of agriculture in the parallel with the national policy, these are "To ensure food security and natural resources conservation". To achieve these objectives, the strategic framework focuses on the following key components:

- Maintenance of an appropriate macroeconomic framework and favorable agricultural policy and institutional environment;
- Accelerated and irrigation development including a greater degree of water control (and drainage) by farmers;
- Development of highly productive, diversified farming systems through, among others, soil, pest, and seed management, and appropriate mechanization and post-harvest technologies;
- Accelerated programme for land titling and land distribution;
- Strengthening essential agricultural support services including marketing, inputs distribution, extension programmes, research and development, and credit;
- Provision of essential social services and public goods such as water supply systems, transport and communication facilities, and storage and warehouse facilities;
- Expansion of livestock production with emphasis on animal health services, nutrition, and husbandry, and establishment of feed processing plants;
- Improved appropriate technologies for rice-fish farming and aquaculture;
- Promotion of community-based forestry, agro-forestry, agroforestry-livestock farming systems; sustainable of fuel wood, and protection and management of critical watersheds;
- Direct support and protection to the poor through targeted programmes.

For contributing of development national economy, Agriculture Development Plan divides into three phases (see appendix 2).

Policy and institutional reform is being supported by strategic public investments including village water supplies and rural road, to support the restoration of essential rural infrastructure and to generate rural employment. Raising rural incomes is essential if the widespread poverty that exists is to be reduced and if rural-urban migration is to be kept within manageable proportions.

VI. Policy framework

The Government strategy is geared towards promoting and strengthening competitive markets for the supply and distribution of good quality of agricultural inputs including availability of loan and saving services at market interest rates for farmers and small entrepreneurs. The Government will continue to promote sector development by encouraging open access to domestic and international markets. As well as the provision of economic infrastructure particularly at the village level such as rural roads, bridges, community water supplies, flood control systems and others facilities in support of rural economy as well as programmes that strengthen institutions supporting agriculture. The government will not intervene in the market except for regulation of standards, environmental protection and management of emergency situations. The key policy elements and timing of policy actions is summarized below:

Table 1.3: Matrix framework, 2000-2002

<p>Goal: Facilitate the transition to a market based agriculture in order to maximize the contribution that agriculture can make to employment creation, income generation, poverty reduction and economic growth.</p>		
<p>Medium term objectives</p>	<p>Policy elements and Actions</p>	<p>Timing &Responsibilities</p>
<p>Improve food security through expansion in the production of rice and other food crops;</p>	<p><u>Boost productivity and promote more efficient agricultural markets:</u> -Enact and implement revised land law - Increase public investment in rural infrastructure -Reform Agricultural material company (COCMA) to the Agricultural Input Company to improve input supplies and distribution. -Implement economically viable irrigation systems based on local participation and cost recovery. -Issue agricultural materials law including environmental standards and set up agency to monitor and enforce law. - Maintain and expand de-mining operation. - Maintain and expand farmer's training programmes and disseminate appropriate and proven yield increasing technology.</p>	<p>LTD.& COM 1999-2000 MoP, MEF, & external assistance 2000-02. MAFF & external assistance 1999 (completed) MAFF, MWRM 2000-02 1998-00 CMAC & external assistance, ongoing MAFF & external assistance Ongoing</p>
<p>Add value to crop</p>	<p><u>Develop commercial agriculture and</u></p>	

and livestock production by developing agro-processing industries;	<u>agri-business for export.</u> -Maintain open accessed to domestic and international market. -Enact to solve the illegal occupation of land to promote private investment.	MAFF ongoing MAFF, 1999-2002
Increase income opportunities for farm household by diversifying crop production particularly those headed by women;	<u>Develop, strengthen, restructure sector institutions through capacity building and privatization:</u> - Build additional capacity MAFF in policy setting, planning, monitor and evaluation and statistics. - Expand extension services from previously targeted provinces to all provinces. - Improve and expand animal health coverage. - Adopt and implement rehabilitation plans for six rubber plantations. - Privatize first plantation	MAFF& external assistance 1999-03 MAFF& external assistance 1999-04 MAFF& external assistance Ongoing MAFF& external assistance 1999-02 MAFF& external assistance 2001
Strengthen the participation of rural communities ins sector programme design and implementation;	<u>Decentralization of decision making authority:</u> -Strengthen the institutional capacity to assess and monitor poverty impacts and to formulate appropriate poverty alleviation programs -Establish Rural Development Committees (RDCs) in each province and plan establishment of district, commune and village RDCs. -Prepare and issue regulation of covering voluntary associations for water use, credit and other agricultural activities so that commitment and transactions of such associations is legally binding.	MOP& external assistance 1997-00 MRD 1997-00 MAFF, 1999-00
Ensure sustainable agricultural production through the improved management of natural resources and	<u>Maintain environmental functions</u> -Implement new environmentally, sustainable, socially responsible and economically viable forestry management policy. -Strengthen fishery resources protection and management. -Demarcate fishing lost and sanctuaries and enforce	MAFF, 1999-02 MAFF, 2000-02 MAFF, 2000-02

	compliance with fisheries law.	
Increase the availability of rural financial services.	<u>Establish finance sector servicing agriculture and rural development</u> -Strengthen Rural Development Bank and support expansion of rural credit and saving schemes -Enact appropriate law and regulations for promotion and supervision of rural micro finance institutions	CARD& external assistance 1999-02 National Bank of Cambodia 1999-00

6.1. Policy goal and objectives:

The government's policy goals and objectives are set out in the Socioeconomic Development Program (SEDP) and may summarize as follow:

- Improve food security through expansion in the production of rice and other food crops;
- Add value to crop and livestock production by developing agro-processing industries;
- Increase income opportunities for farm household by diversifying crop production particularly those headed by women;
- Strengthen the participation of rural communities ins sector program design and implementation;
- Ensure sustainable agricultural production through the improved management of natural resources and
- Increase the availability of rural financial services.

6.2. Research and Development: goals, objectives and strategies

Agricultural research and development goal is increase agricultural production and the productivity in Cambodia through improving the quantity and quality, human and physical resources development and scientific research collaboration.

The objective is to improve and strengthen the capacity with MAFF, provincial agricultural departments and NGOs to provide technologies in support of Cambodian agricultural production.

Agricultural research and development strategies:

- Review the capacity and facility for research and development in Cambodia.
- Prioritize areas for research and development opportunities.
- Develop agricultural research and extension policy statement.

- Establish a Cambodian Agricultural Research and Development Institute (CARDI) as autonomous institution.
- Separate function and budgets of research and extension from other functions of MAFF.
- Use R&D investment Framework to determine priorities for future research development.
- Improve and maintenance current facilities and infrastructure of research institutions.
- Prioritize HRD proposal within each research institute proposal, with an emphasis on potential high value adoptive research.
- Align research support services, such as soil laboratory, plant protection laboratory... etc as part of an appropriate research institute.
- Identify production problems where solutions are likely to be readily available.
- Strong research-extension-farmers linkages and feedback mechanisms identify farmer problems.
- Test technologies for acceptance and possible adaptation with user group (particularly women) before widespread dissemination.
- Improve infrastructure such as irrigation systems, roads assisting access to market, improved processing facilities, especially rice mills.
- Provide a significant contribution through improved varieties and management of technologies such as nutrient management, pest management and agronomic techniques.
- Development of integrated farming systems.

6.3. 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.

6.4. Integrated Nutrient Management (INM)

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.

6.5. Farming systems improvement

- Methodologies and procedures established for planning and evaluating effectiveness of farming systems research.
- Improved understanding of the dynamics of household production systems.
- Adoption of improved rice based farming systems facilitated.
- Development of diversified and sustainable rice based farming systems.

VII. RATIFICATION OF INTERNATIONAL CONVENTIONS

Cambodia is a party of following international conservation

- MARPOL 73 / 78 and its annexes No I to V;
- International convention on civil liability for oil pollution damage (CLC, 1969);
- RAMSAR convention 1971;
- World heritage (Paris 1972);
- Climate change (Rio de Janeiro 1992);
- -Biodiversity convention;
- Agreement on the cooperation for the sustainable development of the
- Convention to Combat the Desertification (CCD)
- CITES
- Agreement on the cooperation for the sustainable development of the Mekong Basin (1995).
- Basel Convention

The Basel Convention is a new to Cambodia. Cambodia will be a party of this convention but it needs more information on the scope of the convention and how it is relevant to Cambodia.

VIII. The collaborative activities for supporting of the preparation and implementation of the National Action Programs

8.1. The National Institutional arrangement

Subject matter specialist is assigned to develop linkages between research institutes, provincial department of Agriculture and District office:

- Technical Department is appointed competent subject matter Specialists to be attached to the relevant institutes.
- Provincial subject matter specialists (rice, field crops, vegetables, livestock, aquaculture, agro-forestry, extension) are located in the provincial department of agriculture and report to provincial director of agriculture.
- Subject matter specialists attached to research institutes are responsible for updating and training provincial subject matter specialists.
- Provincial subject matter specialists are trained and responsible for the day-to-day management of on-farm research programmes within their respective provinces.
- Provincial subject matter specialists provide specialist services to district offices and up-grade skills through on-the job training of district staffs.

Client participation in development of research and extension activities:

- Establishment of District and Provincial Advisory Committees.
- Establishment of board directors of research and extension.
- Establishment of an agricultural research and development council.

8.1.1. INSTITUTIONAL AGENCY

The Government agencies responsible for water resource management are following:

- 1- Ministry Agriculture Fishery and Forestry: Department of Hydrology, Department of Fishery, Department of Forestry and Wildlife.
- 2- Ministry of Industry Mines and Energy: Department of Provincial Water Supply
- 3- Ministry of Rural Development: Department of Clean Water Programs.
- 4- Ministry of Environment: Department of Natural Resources Conservation, Department Environmental Pollution Control, Department of Environmental Data Management, Department EIA Review.

5- Ministry of Public Work and Transport; Department of Transport and Navigation, Department of Sanitation.

6- Ministry of Health: Department of Hygiene.

7- Ministry of Interior; Phnom Penh water supply Authority.

8- Council for Development of Cambodia (CDC): Department of Investment.

Due to these issues we have also Provincial and Municipal Departments of Environment, district and local levels responsible for it. However, we still have constraints on these matters, as following:

- Lack of definition of roles and responsibilities of, and relationships between institutions,
- Lack of physical capacity and resources for enforcement,
- Low appreciation of and understanding of the national for management and conservation measures,
- Weak capacity for policy formulation and strategic planning
- Flow and use of existing data and information, and
- Administrative levels and among government departments.

8.1.2. Planning and Information Policy

The planning and Information Unit is:

- Coordinate and consolidate District and Provincial Extension Plans into a National Extension Planning Framework:
- Consolidate district and provincial databases into a National Agricultural Productivity Database
- Coordinate the delivery of human resource development needs identified by Provincial Directorates and Research Institutes.
- Develop and deliver training programs for other agencies/ organizations servicing farmers (e.g. input supplies, processors, middleman, marketers).
- Coordinate and manage the preparation and distribution of training resource, and technical information.
- Coordinate and manage the delivery of technical and market information services.
- Develop and manage an annual national mass media awareness programs.

- Coordinate the development, production and distribution of Priority Extension Program Packages.
- Develop a capacity for a financial and economic analysis approach to farming as a business.
- Undertake a manager development program for existing and potential managers of research and extension at the District, Provincial and National levels.

8.1.3. Technical Departments

8.1.3.1. The primary responsibilities of the Technical Departments

- Production - Seed multiplication, plant material, livestock, fingerlings etc.
- Production and distribution
- Industry production statistics
- Delivery of national regulatory services such as seed certification, development and facilitation of Village Livestock Assistant animal health services, pesticide registration and quarantine services
- Development and management of national pest and disease surveillance systems and emergency response procedures
- Compliance e.g. fisheries and forest management regulations and legislation, slaughterhouse inspection
- Technical Backstopping - to Provincial Departments through Subject Matter Specialists aligned to research institutes as they are developed.
- Alignment and management of provincially based Subject Matter Specialists will be to Provincial Directors.

8.1.3.2. The main change in the line technical department

In rural development policy, the Government of Cambodia established decentralized systems that plan, finance and manage development in participatory and transparent manner. Through the application of these systems is to create a secure environment conducive to reconciliation between government and committees and strengthen government and non-government entities in providing essential basic services. Decentralized governance has successfully established a functioning management structure from village to national level, which has clearly rationalized and defined institutional roles and responsibilities, horizontally and vertically between various administrative levels. This consists of the Royal Government's Rural Development structure at sub-national level, where investment resources are planned and managed at national level where policy is formulated. The management structure as outlined below:

- Village development committees (VDCs)- Participation
- Commune Rural Development committees (CRDCs)- Local Governance
- District Rural Development Committees (DRDCs)- Provision of Extension services
- Provincial Rural Development Committees (PRDCs)- Management
- Council for Agricultural and Rural Development (CARD)- Policy formulation

8.2. The involvement of the International Communities

How does economic growth benefit the environment? Growth raises expectations and creates demands for environmental improvement. As income levels and standards of living rise and people satisfy their basic needs for food, shelter and clothing, they can afford to pay attention to the quality of their lives and the condition of their habitat. Once the present seems relatively secure, people can focus on the nature.

Therefore, and in order to foster efforts aimed food self-sufficient in Cambodia a major concern relates to agricultural growth rates and food (rice) availability from domestic production many solid measures and policies (laws) strongly foreseen at national level. To reach these goals and objectives the Ministry of Agriculture, Forestry and Fisheries pays much attention on Human Resources Development and Institutional Strengthening through Capacity Building. Improvement of Agricultural Infrastructure (irrigation and roads) that many base upon Technical Assistance, Grant Aids and/or loans from FAO, IMF, WB, ADB, USAID, AusAID, JICA, DANIDA, EU, IFAD, MRC - international, UNESCO and other donor communities as well. For the long-run sustainable development non-paradoxically needs sustainability in natural resources management.

In this context, the Law in Forest Management Reform (Forest Concession Law), Law in Community Forestry, many other as regulations and PRAKAS such as Depression of Anarchy Activities in Forestry, had and have been prepared in close technical assistance with foreign experts from World Bank, Asian Development Bank and many other from International Community such as FAO, GTZ, OXFAM, JICA.

In fact, the development of community forestry-community forestry is a relatively new concept in Cambodia. The two best-known community forestry project that have been successfully implemented are an MCC project in Prey Ler Forest, Takeo and the concern project in Kampong Chhnang. A recent proposal by six hill-tribe villages in Rattanakiri is also are interesting example of a potential community forestry project. This report uses the MCC project as an example of community forestry in Cambodia. Moreover, the Participatory Natural Resource Management in the Tonle Sap Region, Tree Planting Program (FAO - GCP/CMBOO2/BEL) in Siem Reap already started for an extent and came-up with a considerable outputs. And the ongoing of Empowerment of Women in Irrigation and Water Resources Management FAO/CMB/U99 will be as key tools to Improve Household Food security, Nutrition and Health.

IX. THE POLICY ON MITIGATION DROUGHT AND FLOOD

The Law on the creation of the Ministry of Water Resource and Meteorology (MOWRAM) has adopted by the National Assembly and Senate by the second half semester of 1999.

The Existing Ministry of Water Resources and Meteorology (MOWRAM) Laws stated that, the Kingdom of Cambodia is fully depending on the Agricultural Sector and its plays the main fundamental base of the development, because more than 80% of Cambodia has foreseen that the major issues of social stability in which the main work is "Water Policy" (53 projects has been launched in which in 13 provinces and municipalities from 1998-2006 with an overall investment capita of US\$ 202,064,506.26, in which some of are the Government contribution fund, and the rest are Grant Aids and Loans).

9.1. Urgent Actions

- Accelerated development of small-scale irrigation systems: shallow tube-wells, motorized pumps, hand and treadle pumps and financing.
- Improvement and selective rehabilitation of existing irrigation systems.
- Development of small storage reservoirs and colmatage canals
- Optimizing benefits of irrigation development
- Improving farming systems
- Crop intensification and diversification
- Expansion and improvement in livestock production
- Improved management and appropriate technologies for rice-fish farming and aquaculture schemes.
- Promote community -based forestry and agro-forestry
- Improved land tenure and titling strengthening essential agricultural services including market, research and development programmes, delivery of extension services, input supply and distribution, credit, farm mechanization and post-harvest facilities
- Provision of other essential social services and public goods
- Direct support and protection to the poor
- Empowering the poor including land title distribution, access to common property resources, health and nutrition, food procurement schemes.

X. Way ahead (Follow up actions)

The following activities are considered important and need immediate action:

- Continue to rigorously enforce the decision and declarations by the Government on the forest management and eliminates the illegal forest and wildlife activities and elimination of the land encroachment activities is also been strengthening for the implementation.
- Follow up to lobby with the National Assembly in order to get the schedule for discussion of the proposed new forestry law as soon as possible.
- Continue to rigorously enforce Prakas NQ 5721 dated 13 December 2001 issued by the MAFF advised on the suspension of forest exploitation in the concessions.
- Continue to rigorously enforce sub-decree on concession management in forest harvesting activities.
- Encourage the concessionaires to apply Code of Practice for Timber Harvesting in all concessionaires' operations.
- Continue to review and recommend to the government to cancel any concessions, which are not complying the rules, regulations and technical advice issued by the MAFF/DFW.
- Continue to negotiate the investment agreement for new concession with concessionaires.
- To make use of the forest concession management and control pilot project for review and evaluate new management plans, which are prepared and submitted by concessionaires.
- Establish the communication system, equipment and transportation means for detection, prevention and suppression of illegal activities that may occur in anywhere in the forest estates.
- Strengthen the genuine cooperation with the neighbor countries to fight against the cross-boundary illegal trafficking.
- Increase public awareness and encourage the local people to participate in the protection of forest resource, reforestation. The forestry extension program is also had to be improved.
- Continue to cooperate with international experts/organizations to develop and implement the forestry and wildlife projects.