



វិស័យកសិកម្ម  
វិស័យរុក្ខាប្រមាញ់  
វិស័យនេសាទ

ក្រសួងកសិកម្ម រុក្ខាប្រមាញ់  
និង នេសាទ

Ministry of Agriculture, Forestry and Fisheries.

# Agricultural Sector Strategic Development Plan, 2006-2010



*“The Mission of the Ministry of Agriculture, Forestry and Fisheries is to support the economic growth of Cambodia by providing high quality services which result in a secure food supply, increased agricultural output and add value on a sustainable and cost effective basis to the agricultural, fishing and forest based sectors”.*

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## **PART- I**

# **AGRICULTURAL SECTOR STRATEGIC DEVELOPMENT PLAN (2006 - 2010)**

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### **I- INTRODUCTION**

The development of the agriculture sector has been an important element of the Royal Government's strategy to reduce poverty in rural communities, achieve food security, and foster equitable and sustainable economic growth. From a poverty eradication perspective, the most important policy-related objective regarding agriculture development is improvement of household food security. Contributing to the objective, improved living standards more generally, market-based farming will be enhanced, because 85 percent of the population lives in rural communities and 75 percent of the poor are farmer-headed households.

The Cambodian population depends on products from agriculture (mainly rice), livestock, fisheries and forestry for their living. The total output value of the agriculture, forestry and fisheries sector has been increased from 5,191,310 million Riels in 2000 to 5,637,960 million Riels in 2003 (in constant 2000 price) and, however, it contributed to total GDP of one-third of 34 percent in the year 2003. The agriculture, forestry and fisheries sector grew by 9.6 percent in 2003. Crop value added increased in 2003 by 23 percent, livestock increased by 3.7 percent, fisheries decreased 2.3 percent and forestry also decreased 7.6 percent. In spite of the rapid growth of the industrial sector, agriculture, forestry and fisheries sector continues to be the main source of employment for nearly 80 percent of the labor force.

Sustained economic growth is one of the prerequisites for socio-economic development. Therefore, it is of prime importance to identify and generate sources of growth that will create greater income and employment opportunities. In this regard, it is envisaged that agriculture will remain the mainstay of the economy while the tourism and manufacturing sectors will increasingly contribute towards economic growth.

A holistic approach to policy planning and implementation will be adopted to optimize efforts in generating growth. Emphasis will be placed on achieving a more broad-based economy, increasing competitiveness and improving productivity. In addition, concerted efforts from the public and private sectors as well as the communities will be required to ensure the successful implementation of the strategies and programs that have been formulated.

In spite of the significant progress made, the development of the agriculture sector continues to be constrained by inadequate transportation and irrigation infrastructure, lack of agriculture inputs, inefficient marketing and inconsistent institutional support. Reforms have been underway to develop a market-based system focusing on land reforms, price liberalization and adoption of legislation to permit joint ventures

between the state and foreign investors. Moreover, the development of the agriculture sector over the last five years was severely affected by adverse climatic conditions that have ranged from severe flooding to drought over the years.

## **II- CURRENT SITUATION AND GENERAL ASSESSMENT AND ACHIEVEMENT IN THE PAST 5 YEARS (2001-2005)**

### **A. GENERAL SITUATION**

#### **1-POLITICAL SITUATION, SECURITY AND SOCIO-ECONOMY**

A political deadlock caused almost a year retard in forming 3rd mandate of the Royal Government. However, the Government in the 2nd mandate had continued the sustainability of its duty under the brilliant guidance of **Samdech HUN SEN** in implementing strategic plans, ensuring internal and social security, stabilizing the macro-economy, as well as the progressive increase in socio-economic activities in a challenge environment.

Cambodia had made progress in her foreign affair and international cooperation by globalizing herself into international communities. Year 2004 has become the first year of the Royal Government of the 3rd mandate that defined political programs and Rectangular Strategy for increasing economic growth, job creation and effectiveness in Cambodia, while the core of the strategy is good governance. The four rectangle strategy for the improvement includes:

- (i) Enhancement of agricultural sectors;
- (ii) Furthers rehabilitation and construction of physical infrastructure;
- (iii) Private sector development and employment generation; and
- (iv) Capacity building and human resource development

The agricultural situation 2004-2005 was recorded by major events such as: drought and Avian Influenza. In addition, in natural resource sector, there are still anarchic activities in forestry and fisheries exploitation, for instance, the violence of land occupation and land encroachment. This situation has badly affected the development in agricultural sector and rural areas, and consequently a part of agricultural production has declined compared to that of previous years. Similarly, investment from private sector in agriculture and agro-industry has also been interrupted.

Nevertheless, because of the combined efforts and strong consideration of the Royal Government, well coordination between government and people as well as strong support from the international communities, we are able to overcome difficulties and move the agricultural development process forward smoothly.

#### **2-IMPORTANT SITUATION IN AGRICULTURE**

In general, agriculture sector of Cambodia remains under the natural influence although the government has put all effort to invest in irrigation system, flood control, and other natural disaster prevention.

The agricultural production is remained as a critical and importance component in the strategic development of the Royal Government of Cambodia (RGC) for improving the living condition of the people and contributing to the poverty reduction as well as national economic development. This is a core activity of the Ministry of Agriculture, Forestry and Fisheries to be carried out with the strengthening the capacity and efficiency of the supporting services.

The concerned authorities, national and international communities, especially the farmers recognized and are aware of the importance of the sector and they participated in the process for development.

The cultivated areas for agricultural production can be expanded widely and even the production is still under the strong affect from the change of weather condition, but the threat from this condition was reduced due to the huge investment in the rehabilitation and the construction of irrigation system, water control and management.

### **2-1 Situation of rainfall in rainy in 2004-2005**

- As of 2004 the weather in rainy season (May – October) was noted to be a long drought in the middle of the season (a small dry season from mid-July to the end of August). This situation happened in the middle and southern part of the country i.e. in the provinces of Kampong Speu, Kandal, Takeo, Svay Rieng, Prey Veng, and Kampong Cham etc.

Fortunately, provinces located in the North and the West part of the country received heavy rains at the beginning and in the middle of the season.

At the end of the rainy season, starting from October, there has been drought throughout the country. Year 2004 is considered the most difficult year with unfavorable natural condition for agriculture. Rain precipitation in 2004 was lower than 2003 and lower than the average level of previous years.

- As of 2005, the rainfall is favorable for agricultural production. The rain began in early period of the wet-season. However, drought occurred during the mid-season in some areas in several provinces of central and southern region, such as Kandal, Svay Rieng, Takeo, Kampong Speu and Prey Veng.

The rainfall favorably incurred in the northern part, north-west region, and coastal area. It is observed that there was no drought occurred in late rainy season. Furthermore, the rainfall further incurred in late season throughout almost of the country and the production of rice and other crops is considered to be favorably productive, due to the better weather condition.

In conclusion, the weather and rainfall condition in 2005 can be assessed to be better for agricultural production.

### **2-2 Flood Situation 2004-2005**

The level of Mekong River flood in 2004 is lower than 2003. The flood reached too fast to high level and receded too soon to low level which was badly affected the cultivation of floating rice and dry season rice.

In 2005 the Mekong flood level was slightly higher than wet-season 2004. This was not caused any flooding by the Mekong River. The flooding condition resulted from the rainfall is observed to be untroubled for agricultural production as well.

### **2-3 Other Important Situation**

Other remarkable points are prevention and control against Avian Influenza and other animal diseases, illegal animal movement, anarchic exploitation of natural resources i.e. forestry, fisheries, and land occupation etc.

The other major events observed are the prevention of the bird flu and outbreaks of several infectious diseases, the illegal movement of livestock, and anarchy on the natural resources especially in the illegal destruction of forest and illegal grabbing on public land. There is considerably the progress in technology application in order to enhance the quality as well as the quantity of agricultural productivities. The marketing issue is also the major problem for the Ministry of Agriculture and other concerned institutions, which needed to be solved for enhancing the farmer income.

## **B-ACHIEVEMENT AND PROGRESS OF AGRICULTURE BY SUB-SECTOR**

### **1-RICE AND CROP PRODUCTION**

During the past five years 2001-2005 of SEDP II as well as of second mandate of Royal Government of Cambodia (RGC) 1998-2003 and the two first year of the third mandate, many achievements have been significantly made; even they were facing frequently unfavorable climate changes: drought, flood, and insect pests. Moreover, the Royal government of Cambodia has strongly considered and supported food for work, rice seeds and fuels aim to contain damages causing by flood and drought. In addition, the RGC have constructed research infrastructure, actively implemented, and transferred the agricultural technologies to farmers through practicing (Participatory and Integration Approach).

Because the farmers' knowledge has significantly improved as well as the effectively agricultural technologies practiced by farmers, related to seed production, fertilizer application and cultural practice, the crop yield has increased, especially the rice yield 2001-2005- has increased from 1.82 ton/ha to 2.47 ton/ha. However, the agricultural production is still depending under natural condition.

The total of cultivated area for rice production in 2005/2006 was 2,443,530 ha in which 2,121,591 ha was planted in wet season. The area is 69,355 ha higher than 2004, and 124,295 ha higher than average of last 5 years (2001-2005). Average yield for year 2005 was 2.479 tons per ha and 0.501 tons per ha higher than last year (2004). There were 2.261 tons per ha in wet-season and 3.091 tons per ha in dry season. As compared with average of last five years (2001-2005) there were increase 0.53 ton per ha. Total production of 2005 was 5,986,179 tons and 1,815,895 tons higher than last year (2004), in which wet-season were getting 4,734,300 tons (1,601,719 tons higher than last year) and for the dry season was 1,251,879 tons.

Food balance: as of year 2005, there is rice surplus of 1,319,511 tons of rice, equal to 2,061,830 tons of paddy; 1,411,646 tons of paddy are higher than year 2001 and 1,500,892 tons higher than in the average past 5 years.

### **Subsidiary crops and industries crops**

- Secondary Crops: Total cultivated areas were 225,575 ha, which increased 32,614 ha larger than last year.
- Industrial Crops: Total cultivated areas were 229,931 ha, which increased 52,233 ha larger than last year.
- It is noted that the increasing of production for secondary and industrial crops is slowly made.

The factors affected to the increasing of the crop production are due to the prices of those products, markets and weather condition.

## **2-ANIMAL HEALTH AND PRODUCTION**

In order to contribute to the implementation of the Government policy for food security, poverty reduction, food safety and economic development, the Department of Animal Health and Production plays main roles and responsibilities in the following areas: (i) Animal raisings (Production), (ii) Reduction of animal morbidity and mortality, (iii) Prevention of Highly Pathogenic Avian Influenza (HPAI), (iv) Protection and safety of public health or human health.

During the implementation period, there have been observed that animal disease outbreaks occurred in some areas in several provinces. However, these diseases have been prevented by all efforts made from the technical staff in all level, national and international communities, especially from the Royal Government of Cambodia. This is acknowledged that at the present situation, the disease outbreaks could not be caused any serious problems to the people.

### **2-1 Main activities**

Based on the policy and strategy in animal health and production sub-sector, the following activities had been implemented:

- Prevention of animal diseases including pathogenic avian influenza, reducing animal rates of mortality and morbidity among smallholders and commercial farms;
- Improvement of animal breeds;
- strengthening the veterinary and public services in livestock sub-sector;
- Encouragement of investment on cattle, pig and chicken production for meat and egg and marketing;
- Encouragement of investment on animal feed processing, production and the development of animal forage in rural area;
- Strengthening the cooperation between local organizations as well as international organizations, bilateral and multilateral cooperation in livestock sub-sector, animal health and public health.
- Promote exportation and importation of animals and animal productions.

## 2-2 Animal Statistics - main production in 2004

In 2005, according to the HPAI infection in Cambodia and in the region, uncontrolled animal movement, changes of supply and demand of animal and animal products locally as well as regional, the animal production has changed remarkably:

- Cattle:	3,184,146 heads	increased 4.52% (3,039,945 heads)
- Buffaloes:	676,646 heads	increased 3.85% (650,572 heads)
- Draft powers:	1,746,681 heads	increased 6.2% (1,638,385 heads)
- Pigs:	2,688,612 heads	increased 9.67% (2,428,566 heads)
- Poultry:	15,085,547 heads	increased 7.25% (13,990,592 heads)

The comparison of household animal production between 2001 and 2005 was indicated as follows:

- Cattle and buffaloes had 3,494,843 heads in 2001, and 3,860,792 heads in 2005. It is increased 365,949 heads equal 10.47 %.
- Pigs had only 2,114,524 heads in 2001 and 2,688,612 heads in 2005. It is increased 27.15%.
- Poultry had only 15,248,447 heads in 2001, 17,085,547 heads in 2005. It's increased 12.04%.

## 3-RUBBER PRODUCTION

Compared with previous years, the rubber plantations activities in 2005 are considered to be in better performance in terms of production, quality and prices. It was observed that the planting activities were satisfactory because of the suitable climate. This year, the rainfall was in good condition throughout the year, which led to minimize the rate of dead plants.

It is to note that in 2005, the price trend for the international rubber market was remarkably changed. The world demand for consumption on natural rubber was estimated at about 8.8 million tons while the total production of around 9 million tons. At the same time, the synthetic rubber production was estimated at approximately 12 million tons to supply for 11.85 million tons. It is observed that the natural rubber and synthetic rubber productions are still perhaps insufficient for the world consumption in 2005.

In 2005, the seven state owned rubber plantations and the Rubber Research Institute of Cambodia had implemented their work in accordance with their planning and their schedule approved by their respective board of directors for which the main important points are the exploitation, production, exportation, the chopping down of aged rubber trees and the re-plantings. The achievements are described as follows:

### 3.1. Exploitation and Production

- Tapping areas: 22,085 hectares, 99.78% of the planning if compared with 2004 it was decreased around 7.50%. This is due to chopping down of aged rubber trees for re-planting.
- Dry rubber production: 20,382 tons, 79.73% of the yearly plan, if compared with 2004 it was down to about 21.39%. This is due to tapping areas

- decreased, rubber trees became older, and the weather is warm from early October 2004, which resulted in making dry on tapping panel.
- Dry rubber export: 20,999 tons amounting to US\$ 29,208,534.00 .If compared with 2004, the revenue was decreased to 4.47%. This was due to the decrease of production. If this compared with the sale price of the year 2005, it was observed that the average selling of rubber was US\$1,391.00/ton (it was increased about 18.38% more than 2004) while the selling price in 2004 was only US\$ 1,175.00/ton.
  - Taxation paid to the National Budget: Riels 18,988,257,439.00 (Preliminary figures before closing account of 2005).
  - Areas of new plantings: Up to 2005, there are 20,098 hectares of rubber under maintenance including 5,095 hectares recently planted.

### **3.2. Chopping down aged rubber trees**

Up to 2005, the total accumulated areas for cutting down rubber old trees were of 21,798 hectares (69% of the chopping plan of 31,562 hectares), in which 4,223 hectares for 2005.

### **3.3. Activities for Rubber Smallholder Development**

In compliance with the Government policy, and with the financial support from the Agence Francaise de Developpement (AFD) the development of smallholder rubber production projects have been carried out in Kampong Cham province. The projects have been successfully implemented with better achievement, in quality as well as in quantity.

Moreover, the Smallholder Rubber Research (SRR) within the Agriculture Productivity Improvement Project (APIP) of the Ministry of Agriculture, Forestry, and Fisheries conducted under credit loan from the World Bank was ended in December 2005.

The preliminary project outputs were the study on clone performances GT1, RRIM600, IRCA18 & PB260 and the effect of fertilizer on their growth. In 2004, 08 trials, 04 at Chamcar Andong and 04 at Trapeang Russey, planted in 1998, started to tapping. In 2005, 02 trials at Snuol, planted in 1999, started to tapping.

The started opening panel for tapping is a great meaning of demonstrating the positive result from the SRR to people for the future rubber development in the nation wide. Technically speaking, the SRR shows that the maturity of natural rubber is now within 5-6 years instead of 7-8 years.

### **3.4. Activities of Rubber Research Institute of Cambodia**

The year 2005 is the 8<sup>th</sup> year for establishment of the Institute of Rubber Research of Cambodia. This Institute is managed under rules of the Administrative Public Institution. In 2005, the main achievements are made as follows:

- Support the implementation and monitor the rubber development program on smallholder rubber development. Conduct the sustainable research program on rubber clone to find out the one that will provide high yield and appropriate basic technical document of reference.

- Try its best to cooperate with Rubber Research Institute of Vietnam, Rubber Research Institute of Srilanka and CIRAD to introduce 6 clones and establish a large field trial for 8 clones.
- Research on agronomy: 04 subjects have been set up: the trial methodology of plantings, the biomass management on inter-row, the cover crop on inter-row and the relationship between inter-row & multi-cropping.
- Research on physiology: conduct a study on stimulation frequency for 04 clones, tapping frequency on 03 clones about tapping relax and about technical rules of opening the panel for tapping.
- For training and information dissemination, the Institute organized two short training courses on the rubber exploitation and waste-water treatment from factory to provide to staff from different Plantations and smallholder rubber development project.
- Try its best to develop itself to become a regional laboratory recognized by the International Rubber Association (IRA) for the International Contract on Technically Specified Rubbers (TSR) and participate 02 times per year in Round Robin Crosscheck with the IRA's Laboratory with satisfactory result. In addition, the Institute has conducted several Parallel Tests with laboratories of Rubber Plantations.

#### **4-FISHERIES ACTIVITIES**

In 2005, the Department of Fisheries continued implementing the fisheries reformed policy from previous years and achieved a lot of works including the preparation of fisheries law, regulations, establishment of community fisheries, research and conservation of fish sanctuary, aquaculture development and extension, and suppression of illegal fishing activities. Other achievement was a well prepared fisheries action plan 2006 and indicators against those activities.

In 2005, the organization of community fisheries was still an active process at all provincial and municipal level. The number of fisheries communities has increased to 440, in which, 405 of fisheries community are located in provincial freshwater fisheries domain and 35 in the marine fisheries domain.

The fisheries law was drafted under the financial support of loan from World Bank. The draft was widely consulted in the department of fisheries, and was adopted by the 3rd mandate of National Assembly in the 4th plenary session on 12 March 2006. Beside the fisheries law, there are many sub-laws being prepared by the DoF including the sub-law and Royal Decree on the establishment of community fisheries, sub-law on community fisheries management, that were officially approved by the Prime Minister in June 2005. There is also a guideline on community fisheries, which covers the by-law on action plan, the community fisheries agreement, being publicly discussed at the moment. In addition, there is a number of regulations being prepared and in use. The followings are activities related to fisheries domain and fish conservation:

- Prepared the Royal Decree on the Protection and Conservation of Dolphin in Kratie and Stung Treng Provinces. As a result, the MAFF mandate is to be responsible for the management and conservation of freshwater dolphin,

whereas the Ministry of Tourism is responsible for the development of eco-tourism and dolphin;

- Prepared a draft Royal Decree on the Protection and Conservation of Fisheries Resources in the coastal fisheries domains of Cambodia. The draft was already passed an inter-ministerial meeting and was returned DoF for modifications;
- Prepared a draft Sub-Decree on the Procedures and Conservation of the Fisheries Resources in the coastal fisheries domains of Cambodia;
- Drafted the Sub-Decree on Identifications of Endangered Fisheries Resource Types;
- Cooperated with CMDP to search for dolphin pools in Kratie and Stung Treng provinces. As a result, 5 pools in Kratie and 5 pools in Stung Treng were found;
- Identified locations for placing 1,200 artificial bins/baskets and cement posts for conserving sea grass preventing from fishing net operations at Chroy Prah village, Chroy Prah commune, Koh Kong district, Koh Kong province;
- Cooperated with UNEP to search and identify the protection and conservation areas for coral reef and sea grass at Koh Sdach of Koh Kong province and Koh Ron and Ron Sanlem of Sihanouk Ville. Continue identifying in other areas at Kampot and Kep.

#### **4.1 Inland Fisheries**

The total catch of inland fisheries in 2005 is 324,000 tons or 92.57% of 350,000 tons planned last year, although the catch increased 74,000 tons compared with that of 2004. The composition of the total inland capture fisheries are:

- Fishing lots and middle scale fisheries 2004 – 05 is 94,500 tons or 94.5% of 100,000 tons planned last year, although the catch increased 24,400 tons compared with that of 2004.
- A family fishery is 137,700 tons or 91.8% of 150,000 tons planned last year.
- Rice field fisheries are 91,800 tons or 91.8% of 100,000 tons planned last year.

Besides, at the beginning of open fishing season 2004 – 2005, the catch trend increased about 20%. Capture fisheries from Dai (fish bag net) is about 30,000 tons or 250% of the average catch in the last 10 years.

#### **4.2 Marine capture fisheries**

The total catch of marine fisheries in 2005 is 60,000 tons or 133.33% of 45,000 tons planned last year. The catch increased 4,200 tons compared with the catch last year.

#### **4.3 Aquaculture production**

- Fish and shrimp culture is 26,000 tons (Fish 25,890 tons, shrimp 110 tons) or 74.29% of 30,000 tons planned last year, although the catch increased 5,165 tons compared with that of last year.
- Seaweed culture is 18,000 tons or 90% of 20,000 tons planned last year, although the production increased 1,160 tons compared with that of last year.
- Crocodile farming is 120,000 heads or 150% of 80,000 heads planned last year. The number of crocodile increased 45,180 heads compared with that of last year.

- Fish seed production is 18,733,000 fingerlings or 74.93% of 25,000,000 fingerlings planned last year. The seed production decreased 2,940,000 fingerlings compared with that of last year.

#### **4.4 Fish Product Processing**

- Freshwater fish processing, produced 23,500 tons equal to 78.33% of 30,000 tons planned, increased 3,600 tons from last year;
- Marine fish processing, produced 2,500 tons equal to 112.50% of 30,000 tons planned, decreased 370 tons from last year;
- Fish sauce processing, produced 11,260,000 liters equal to 45.04% of 25,000,000 liters planned, increased 206,6000 tons from last year;

#### **4.5 Fish Export**

- Live and processed exports, produced 52,000 tons equal to 130% of 40,000 tons planned, increased 6,150 tons from last year. The increased fish catch in 2005 and high demands from neighboring countries were the main reason.

### **5-FORESTRY ACTIVITIES**

#### **5-1 Law and the other regulation**

The Royal Government of Cambodia (RGC) has adopted and implemented the law on forestry, National Forestry Policy Statement, Sub-Decree on the management of the concession forest, Sub-Decree on the management of forest community, regulation No. 02 RE, PRAKAS No. 01 BK dated 25 January 1999 on the management measure and elimination of forest anarchy, PRAKAS No. 06 BK dated 27 September 1999 on the anarchy elimination measure of land control invasion, technical rule, specification and related instruction policy in which is the baseline for sustainable forest management.

The Rectangular Strategy of Royal Government of Cambodia (RGC) based, the Forestry Sector reform is the fourth side of the first rectangular which strategy objectives of RCG in the Forestry Sector for ensuring with Sustainable Forest Management depend on basis of the three essential center pillar constituted Sustainable Forest Management Policy, Natural Resources Protected System and implementation of Forestry Community Development Program.

Forestry Administration (FA) is Agent of Ministry of Agriculture Forestry and Fisheries (MAFF) of RGC, FA has collaborated with institutional forces involved and international partners for complement the ordinary good order and strengthen capacity in sector that fundamental forward to conservation and sustainable management in Kingdom of Cambodia for future. In 2004, the achievements from the implementation of Forest reform program through the strong implementation of the Rectangular Strategy of RGC, FA has get the important achievements as bellows:

#### **5-2 Concession Forest Management**

From 1999 to date, the Royal Government of Cambodia (RGC) has pronounced to cancel the agreement and withhold the concession forests of 17 companies having total forest land area of 24 places equals to 3,501,170 hectares from the concession forest companies. While 12 concession forest companies in which the investment agreement remains in force and have land area of 3,374,328 hectares have been required: (1) to renegotiate the concession forest investment agreement (2) to re-plan the concession forest management in accordance with the international standard sample to control the forest with perpetuity. Meanwhile Kuk business activity for the concession forest company has also postponed from 01 January 2002 until all the concession forest companies have planned a new definite concession forest management under the requirement of regulations and technical specification for the conduct of forest management with perpetuity and accept the consent of Ministry of Agriculture, Forestry and Fisheries.

Presently the concession forest management planning of company remaining force have open wide to the public and accepted the evaluation from FRM International Qualification Company, evaluation control group of natural resources management work group of the donors without finding in order to control and re-total by forest administration and Ministry of Agriculture, Forestry and Fisheries.

### **5-3 Forest Planting- Conservation and Forest Community**

Trees planting in land area of the wear and tear forest area constitute the plantation, forest's day and domestic from 1998 to 2003 have been completed 5,602 hectares. Sowing and distributing small trees by persuading people to take part in planting trees at the villages, plantation, the public places and other religious ceremonies totaled 10,629,309 trees; There are 101 stations were established for nursery access management and forest extension and tree seedling distributed and for forest rehabilitation, in that there are 51 stations were new established by AF.

There are 862 Ha and was planted, by the Royal Army participated, that time 10,894,227 tree seedling were distributed to people for plantation and 8,643,449 tree seedling were distributed by private sector.

Based on researches of FA local level consider that, presently there are 259 forest communities (FC) that supported by NGOs and International organization in 16 provinces, herein 4 forest communities in Takeo, Pursat, Koh Kong, and kampong Chhnang provinces have been organized by MCC, Concern Worldwide, CFRPDIRC/RECOFT and AFN in cooperation with forest administration. In addition, it constitutes the arrangement by national and international NGOs in cooperation between those organizations and qualified entities concerned at provincial level;

In cooperation with DANIDA of Denmark, the creation of the forest specie genetic conservation area of 11 places has been carried out.

### **5-4 Wildlife Research and Conservation**

- Through satellite illustration in 2002 to be taken by the United States of GIS of the forest administration in cooperation with French consultant of FRM shown that the Cambodia forest resources cover is increased from 58.6%

(10,638,208 hectares) of Cambodia's land area in 1997 to 61.14% (11,104,285 hectares) in 2002;

- Be and being cooperated with forest research institute and forest production of Japan to implement research program on the "variation of water regime in Mekong river basin" as well as installed a large meteorology station in Kampong Thom province;
- Conducted the research on forest restoration by incorporating commercial forests in natural forest following completed business activity in Kampong Thom province in cooperation with FORSPA, APAFRI;
- Conducted research and discovered the existence of significant wildlife of 1,113 kinds herein included 122 kinds of mammal, 537 kinds of birds and 114 kinds of reptile and 40 kinds of aquatic animals and 30 kinds of butterflies;
- Run and created zoo and wildlife rescue center of Tamao mountain where has been inaugurated officially to be preside over by Samdech Prime Minister HUN SEN. At the same while, has also conserved wildlife in this center of 905 wildlife corresponded to 86 kinds;
- The Royal Government of Cambodia (RGC) has determined to create the forest bio-diversity resource and wildlife protection area of 29 places covered land area of 4.45 million hectares equals to more than 25 percents of total area nationwide in which is the higher figure ahead in the world.

## **C- ASSESSMENT AND CONCLUSION**

Activities and outputs achieved by sector and sub-sectors reflex to strengths, weakness points, and it can be concluded as follows:

### **1- Strength:**

- Agriculture is a high priority sector in the Government's policy and is strongly supported by the Royal Government of Cambodia, especially by Samdech HUN SEN, Prime Minister of the Royal Government of Cambodia. With this regards, agriculture and rural development has been considered as sustainable growth source for Cambodian socio-economy, and it is a factor that makes donor communities to pay attention in strong support for the development;
- MAFF, relevant institutions, concerned local authorities, national and international communities, and the whole nations, especially farmers have endeavored to develop agriculture sector;
- Laws and regulations have been revised, completed, and some of those were newly created to complement on what are shortages in the regulation frameworks, that those would help to carry out efficiently and effectively;
- Physical infrastructures that supported to the development of agriculture production such as agriculture irrigation and flood protection are made continually progress;
- Emergency intervention against to natural disaster has been ready to intervene and respond on time.
- Formulation of the strategic policy, program planning and other development projects with sound economic analysis has been enforced respectively, together with prioritizing those to be connected with the budget allocation or other resources in order to get high effectiveness for development goals;

- Human resource has been developed to have better capacity, with the inputs and materials have also been improved;
- Quality of research services and technical extension that supporting the production and exploitation have day by day been progressive;
- Management of natural resources, forest, wildlife, fishery, land has sustainable and orderly enhanced based on legal framework & techniques and capacity of human resource which has been upgraded and improved, with strongly support by the Royal Government, relevant institutions, all levels of local authorities, national and international communities;
- The management performance of national economic development, in general, as well as the management in agricultural production and exploitation is being promoted and reformed appropriately in accordance with the evolution of the regional and global economic integration and competitions;

## **2-Constraints:**

- Rely on natural factors which always irregular changes and limited capacity in agricultural irrigation are caused agricultural production from year to year by unbalance growth;
- Investment is limited due to the country is scare of financial resource.
- Consistency of concept in the formulation of strategy and action plans counterfaced and it is yet to harmonize those into one development concept that would facilitate towards to effective implementation;
- Laws and regulations enforcement has been challenged and limited that caused limitation to respect, remaining newly offenses;
- Structure of management, disciplines, and responsibilities for staff is poor together with low salary affected to the management of trained staff, effectiveness of the works and skill application are limited;
- Reform process, especially reform on administration and staff management is considered to be slow and is not responding to requirement of works and development progress;

## **3-Conclusion and Recommendations:**

- Agriculture in Cambodia remains under a variable influence of natural phenomenon in the next future. Rehabilitation and development of irrigation infrastructure is needed and considered as priority, however, it is not depending on the irrigation alone, this would be supported by others such as the promotion of technical measures aims to improve the agricultural production and extensive farming system;
- Harmonize with development concepts: strategy and actions to be activity implemented in the reform programs, management system and support services with the appropriate use of the available resources in the priority areas to achieve the effective management and development;
- Human resource trainings that used much budget of both government and development partners should be linked for the effective use by connecting this with the process of administration reform in order to reduce non-quality staff so that the less staff number but qualified for works;
- State investment should be focused also a priority on research, extension in order to speedily develop this sector. It is proposed that there should not only invest in physical infrastructures, but also invest on inputs, materials for research and extension for development, and especially invest in the issues of suitable and honored livelihood of scientists and technicians;

- Decision making on reduction of incapability and obstacles that is the key factor of the development;
- Production, exploitation, processing and business should be integrated in order to achieve the success in socio-economic development and sustainable use of natural resources;
- To achieve development and rural poverty reduction faster, the reform of agricultural production and the reform of rural structure which is suitable for development need to be accelerated. A unit that is responsible for agricultural land reform & development can be considerable to establish under MAFF with based on the results of Agrarian Structure in Cambodia and experiences learnt from other countries in region.



## **PART - II**

### **AGRICULTURAL SECTOR STRATEGIC DEVELOPMENT PLAN 2006 - 2010**

#### **III- AGRICULTURAL SECTOR STRATEGIC DEVELOPMENT PLAN (2006 -2010)**

##### **A. Background**

The Agricultural Sector Strategic Development Plan is presented the MAFF development goals, development objectives, outcomes, outputs and activities during the period 2006-2010. This strategic development plan is provided as *inputs to the national development for the medium-term plan, 2006-2010*.

Economic growth is based on agriculture sector and 85 percents of population is living in rural areas. Food availability and access in Cambodia is based on agriculture production. Agriculture contributed about 34% in national GDP in 2003 and agricultural growth 9.6% in GDP due to favorable climate condition for agriculture. Rice is the main predominant staple food in Cambodia. An estimate is about 68 percent calories intake for rice with the rest derived from fish, meat, tubers, vegetables, fruit and others. Crop production is accounted for 46.9 %, in 2003, while livestock and poultry accounted for around 16.1 %, fisheries 31.4 % and forestry 5.6 % (Ministry of Planning-NIS, December 2004).

The Royal Government of Cambodia has lunched a strategic policy to put the enhancing of agriculture sector as a rectangle side for poverty reduction and sustainable economic development. Rectangular strategy is visualized as a structure of interlocking rectangles emphasizing four areas of good governance, laying out the four element of enabling environment; identifying four strategic " growth rectangles" and elaborating four sides of each strategic " growth rectangles". Significantly agricultural productivity, diversification and competitiveness appear at the top of the strategic "growth rectangles" those include: (I) improving of agricultural productivity and diversification of agriculture, (II) land reform and de-mining, (III) fisheries reform and (IV) forestry reform.

This strategy is an economic agenda that would further activate and strengthen the achievements of the Government. The formulation of agricultural sector strategic development plan is based on Government's National Development Policy or Programs in particular following instruction of Ministry of planning that are combined the RGC policy platform in agriculture, Rectangular Strategy, the Cambodian Millennium Development Goal, SEDP II (2001-2005), NPRS (2003-2005).

Agricultural sector strategic development plan is also based on Sub-Decree 17 of MAFF mandate and sub-sector policies including crops and livestock policies, agricultural research and development policies, forestry policy and fisheries policy...etc.

The agricultural sector strategic development plan come up by consultation with technical departments within MAFF, provincial departments of agriculture and with relevant stakeholders such as technical working group of agriculture and water, fisheries, forestry and food security and nutrition...etc and followed the circular on the

formulation of the NSDP 2006-2010 of RGC in January 2005 and technical guide of the NSDP of the Ministry of Planning in February 2005.

In the third mandate of the Royal Government of Cambodia, the Government has clearly identified, in particular the agriculture sector, the development objectives in accordance with the national development framework “achieve and ensure food security and conserve the natural resources”. The policy platform and Rectangular Strategy are fundamental of Agricultural Sector Strategic Development Plan 2006-2010.

In order to achieve these development objectives, the Royal Government of Cambodia proposed some development policies in the government’s policy platform for agriculture sector as follows:

- 1) The agriculture policy of RGC is to improve agricultural productivity and diversification, thereby enabling the agricultural sector to serve as dynamic driving force for economic growth and poverty reduction. The Government of Cambodia will invest substantial domestic resources to promote agricultural intensification and diversification to booster economic growth, create employment and generate income in the rural areas, ensuring nutritional improvement, food security and increased agricultural exports;
- 2) The Government will create a favorable environment conducive to private sector participation in the agricultural sector by accelerating the land distribution and the issuance of security land titles within social land concession framework, particularly in the rural area. The Government improves irrigation facilities and water resources management by improving the existing irrigation systems and establishing and strengthening of farmer water communities in order to reduce the affect of natural disaster;
- 3) For increasing of agricultural productivity, RGC promotes support services such as agricultural research and extension, market development of agricultural products, distribution of input supply including seeds, fertilizers and rural credits. Base on the implementation of decentralization policy, the Government has delegated the role and responsibilities to commune council to strengthen the capacity become as development authority as knowledge transferring and information sharing to farmers. RGC will accord special emphasis on directing public investment and encouraging private investment in agriculture sector in order to increasing quantity and quality of agricultural products toward international standards;
- 4) RGC will continue to develop border and remote areas in order to control migration through development of township centers adequately equipped with infrastructure that facilitate residents' livelihoods and local economic activities;
- 5) RGC will promote the "one village one product" movement to encourage creativity and confidence of the rural people by adopting four principles: (i) find out the suitable production for village context and market needs, (ii) provision opportunity and promoting to people in production through provision of market access, credits, technology transfer and input supply,

- (iii) providing management training and human resource development and
- (iv) facilitating to people in establishing of agricultural development communities and to ensure remunerative product price.

## B. MAFF VISION

The long-term vision of Agriculture, Forestry, and Fisheries is to ensure:

***Enough and safety food availability for all people, the poverty will be reduced, and increasing the GDP per capita and sustainable natural resources management and conservation.***

## C. MAFF MISSION

The mission of Agriculture Forestry and Fisheries is to:

***“Support the economic growth of Cambodia by providing high quality services which result in a secure safe food supply, increased agricultural output and add value on a sustainable and cost effective basis to agricultural, fishery and forestry based sectors”.***

## D. OVERAL GOAL

***“Poverty reduction and economic growth through enhancement of agricultural sector development”***

## E. SECTORAL GOALS, 2006-2010

The main purpose of this Strategy is to contribute the Government’s National Strategic Development Plan, and in particularly, the Ministry of Agriculture Forestry and Fisheries has defined goal/objectives and action plans/programs to be supported by setting the sectoral and sub-sectoral development programs.

The main **Sectoral Goal** is defined as follows:

***“To ensure food security, increase incomes, create employment and improve nutrition status for all people by improving the productivity and diversification and commercialization of agriculture with environmentally sound protection and food safety”.***

In order to achieve the goal of the Government’s national strategic development plan, MAFF has set the seven specific sectoral goals/objectives in agriculture sector and the details are as follows:

- 1) Food security, productivity, diversification;**
- 2) Improve and strengthen agricultural research and extension systems**
- 3) Market access for agricultural products;**
- 4) Institutional and legislative development framework;**

- 5) ***Land reform: (land tenure and land market development and Pro-poor land access)***
- 6) ***Fisheries reform - sustainable access;***
- 7) ***Forestry reform (Promote conservation and management of sustainable forests, Ensure better management of natural protected areas)***

## F.MAFF SUB-SECTORAL GOALS / OBJECTIVES, 2006-2010

In order to achieve the main goal of MAFF as well as the government's national strategic development plan, MAFF has clearly set the immediate and specific sub-sectoral goals in agriculture sector development and they are as follows:

### **Goal 1: Food security, productivity, diversification;**

- 1.1. Ensure food security for all people; increase income and improve livelihood for rural poor population by improving productivity and diversification of agriculture;
- 1.2. Food-insecure households are able to increase food availability from their own agriculture and livestock production, common property fisheries and common property forests.
- 1.3. To ensure that poor and food-insecure people by 2010 will have substantially improved physical and economic access to sufficient, safe and nutritious food all the times to meet their dietary needs and food preferences for an active and healthy life. Through its implementation will also affect 3 keys food security and nutrition of SNDP including: (i) increasing and insuring food availability, (ii) improving food accessibility including incomes and affordability, and (iii) ensuring optimal food use and utilization through health and nutrition education.
- 1.4. Improve and develop the productivity and diversification through improvement and development of infrastructure and technology knowledge including small-scale production such as home garden.

### **Goal 2: Improve and strengthen agricultural research and extension systems:**

To increase the quantity, quality, and availability of technologies, methods and policy advice for the efficiency and profitability of agriculture while improving food security, safety, equity, and natural resource sustainability.

We will enhance research work of agricultural technologies and key research programmes refer to progress and development technologies in the region and in the world, and free market economy.

- 2.1. Improving the efficiency and effectiveness of technology development and transfer through the greater participation of producers in all stages of the research and dissemination process, better targeting of research resources and stronger linkages with all sources of knowledge;

- 2.2. Broadening the funding base and promoting participation of the private sector in the funding and provision of agricultural research and related services;
- 2.3. Incorporating social equity, gender and environmental concerns in all aspects of technology development and transfer;
- 2.4. Increasing and maintaining a knowledge base through applied and adaptive research and through interactions with international institutions for basic and strategic research data;
- 2.5. Strengthening its capacity to implement these strategies in a sustainable manner especially with respect to its ability to attract, develop and retain quality staff, resource deployment and decentralization of activities in service of agricultural development efforts throughout the country.
- 2.6. Strengthen and improve the capacity of research and development technologies through academic study, exchange technologies, transfer of technologies and implementation of the Good Agricultural Practices (GAP) to ensure the quality and safety of agricultural products in Markets;
- 2.7. Strengthen and improve exchange technologies and experiences among stakeholders (researchers, extension and farmers) through improving agricultural services;
- 2.8. Strengthen and improve extension and applied technologies in agricultural production e.g. biotechnologies, intensification and diversification of agriculture practices with cost-effective and environmental friendly, and applied conservation agriculture techniques and organic farming

### **Goal 3: Market access for agricultural products**

- 3-1 Improve market opportunity and access for agricultural products to ensure the sustainability of economic growth and market access, and employment for rural farmers
- 3-2 Improve agricultural safety standards

### **Goal 4: Institutional and legislation frameworks**

- 4-1 To ensure adequate and efficient of institutional management standards and legislation standards, work performance by improving and strengthening institution and legislation frameworks.

### **Goal 5: Land reform (Land tenure and land market development)**

- 5-1 Ensure the access of land resources for the rural poor farmers by improving land tenure security and land market, and reduce land disputes.
- 5-2 Ensure effective use of land for socio-economic development and the protection, and sustainable use of land resource through promoting land reform.

### **Pro-poor land access;**

- 5-3 Create possibilities for the poor household to have land for residence /family farming and improve state land management.
- 5-4 Ensure sustainable access of land resource for the rural poor farmer by promoting land reform
- 5-5 Ensure access of land for promoting agricultural industrialization and commercialization by de-mining, UXO, and victim assistance
- 5-6 Ensure land security of poor households in rural areas

### **Goal 6: Fisheries reform - sustainable access;**

- 6-1 Ensure sustainable access to fisheries resources for rural poor population by encouraging fisheries reform;

### **Goal 7: Forestry reform:**

#### **Promote conservation and management of sustainable forests**

- 7-1 Ensure sustainable forestry resource management and access to forestry resources for rural poor people by promoting forestry reform,
- 7-2 Ensure maximum participation from the private sector and local community in the scheme of conservation and management of sustainable forests by increasing the proportion of forest cover to 60% in 2010 of the total areas, and increasing protected areas to 1.5 million ha.

#### **Ensure better management of natural protected areas**

- 7-3 Ensure the protection and sustainable use of land resource through producing data on land use, forest coverage, infrastructure, and geographical division in protected areas and
- 7-4 Ensure proper management of mangrove forest resources

## **G. MAFF PRIORITY ACTIONS AND PROGRAMS TO OVERCOME THE MAJOR CONSTRAINTS**

In order to achieve the goal of the government's national strategic development plan as well as MAFF's goal/objectives, the Ministry of Agriculture Forestry and Fisheries has defined clearly objectives or sub-goals to be supported and contributed to the national development goal by setting the specific sectoral and sub-sectoral development programs.

However, MAFF can not achieve the goal if the major constraints would not be identified and the action measures to overcome these obstacles would not be

implemented. Below statements are the main constraints that have been identified following the action plans/programs to implement within the period of 2006-2010.

## **1. Food security, productivity and diversification**

### **Constraints**

Most poor and food-insecure households in Cambodia are rural small-hold farming households. They strive to produce as much of their food needs as possible. They typically do this through a combination of activities including crop cultivation, livestock keeping, and harvesting commons forests and fisheries for food. They also seek to get cash income from such activities to buy foods they cannot produce and to meet other basic needs. While these activities are critically important sources of food and income, rural Cambodians typically confront low productivity and high risks in their own efforts in food production and harvesting forests and fisheries.

On these small areas of land people grow food crops, but 80% of the national agricultural cropping area depends on rain-fed cultivation under erratic wet season rainfall, and without the possibility to grow crops in the dry season. Wet season crops are at risk of damage from flood, drought or pest damage. Poor soil fertility characteristics also limit rice crop production in 50% of national agricultural lands. In the rain-fed lowlands, where a majority of rural people live, there is a very limited crop diversification with a heavy dependency on rice production. Upland agriculture, while more diversified, suffers from low productivity, drought risks, lack of secure land title (including communal land title), land encroachment, and deforestation.

There are a range of other causes of low productivity and high risk in crop production, especially among poorer small-hold farmers. These include: a lack of affordable good quality inputs to improve agriculture (seed, fertilizer, machinery, implements); insufficient access to agricultural support services (agricultural extension, farmer education and training, credit, agricultural research); inadequate access to disaster and risk management related services (weather information, rainfall forecasts, drought and flood warnings); inadequate agro-processing and storage technologies for value-added production and reduction of post-harvest losses; and basic deficiencies in agricultural marketing infrastructure and services.

Livestock production is also characterized by low productivity and high risks. Constraints include: the small number of livestock head owned per household; high livestock mortality rates from diseases; and high livestock morbidity rates and lowered productivity associated with seasonal shortages of feed and water.

An overarching constraint to improving agriculture and livestock production for improved food security is that poor small-hold farmers typically lack knowledge and skills in how to increase productivity of crops and reduce risk through improved crop and livestock production technologies, and then often lack the material means to adopt these improved technologies. Meanwhile, poor small-hold farmers (including poor rural women) do not have sufficient access to agricultural and livestock extension and farmer training services. They also lack access (unavailable, too expensive) to improved inputs such as quality seed, fertilizer, livestock medicines. Finally they lack access to capital and affordable credit for agricultural investment. The lack of access of poor and food-insecure farmers to these agricultural support

services is a major constraint to increasing their farm productivity for improved food security.

### **Action to overcome**

The priority tasks to address these constraints focus on improving household food security and income through intensification and diversification of crops and livestock, water controls and improving the access to land, forestry and fishery resources.

To overcome these constraints, MAFF will undertake the following activities:

- 1) MAFF will up-scale to nationwide of the national programme for food security and poverty reduction in 8,000 villages. It will improve food security for 2 million of the poorest Cambodians, thus significantly contribute towards fulfillment of CMDG 1, and its target: *'Halve, between 1993 and 2015, the proportion of people whose consumption is less than the national poverty line'*.
- 2) Improve water management and available water supply for crop and livestock production through expanding irrigation and agricultural water supply, prioritizing food-insecure communities by:
  - Promote higher returns from irrigation and rain-fed agriculture, through improving farming practices, diversification of crops types and support to distribution and marketing.
  - Improve 100,000 ha irrigation systems in potential production areas of irrigated and rain-fed areas, and promoting the participatory water management;
  - Establish preparedness for risk reduction and disaster management dimensions in their activities to improve agricultural and livestock production (risk reduction and management of drought and flood impacts on crops, risk management of livestock disease outbreaks).
- 3) Develop land capability and land suitability classification for contributing to land use plan and crop zoning.
- 4) Improve soil fertility management and conservation in all agro-ecosystems.
- 5) Improve & promote rice and other crops intensification by using integrated crop management, IPM and SRI techniques.
- 6) Rehabilitation of agricultural research stations and agricultural development centers (rice, cash crops and fruit trees)
- 7) Improve plant protection program includes integrated pest management and (include services, lab and training).
- 8) Promote agricultural quality improvement program: seeds (rice, cash crops and vegetables, fruit tree), fertilizers, pesticides;
- 9) Strengthen the capacity for the management of Agriculture materials standards.
- 10) Expand MAFF Dept. of Animal Health, Production, and NGO livestock veterinarian, extension, farmer education/training, and field experiment services for farmers, specifically at poorer small-hold farmers.

- 11) Develop public radio-based warning systems of livestock disease outbreak including advices on management/ treatment measures for farmers.
- 12) MAFF, MOH, and other stakeholders establish a comprehensive contingency plan and take measures to prepare for a possible Avian Influenza pandemic.
- 13) Improve commercial animal production through improving animal breeds, feeds and animal husbandry facilities;
- 14) Improving animal health and veterinary services program (include training, village livestock agents, vaccines and drugs, and labs services);
- 15) Strengthen and improve animal products and sanitary controls (including legislations, control and inspection, slaughterhouse improvement );
- 16) Strengthen agricultural machinery sector by developing of agro- machinery workshop center for training and development at each agricultural production regions;
- 17) Provide training and extension of utilizing, operation and maintenances of agricultural machinery;
- 18) Strengthen management of agricultural machinery by developing of legislation of agricultural machinery managements;
- 19) Establish intervention groups of agricultural machinery for emergency assistance such as pumping, plowing;
- 20) Strengthen and upgrade capacity building of agro-industry and agribusiness including legislations, training, lab facilities);
- 21) Encourage private sector to invest in agro-industry and agro-processing and agribusiness;
- 22) Improve post-harvest technologies of agricultural products, fish and livestock products

## **2. Improve Agricultural research and extension services**

### **2.1. Agricultural research**

MAFF will enhance research work of agricultural technologies and key research programs refer to progress and development technologies in the region and in the world, and free market economy.

#### **Constraints**

Many of the constraints to agricultural research and development are lack of inputs and materials for investment, limited capacity of human resource and lack of academic information and lack of coordination body to coordinate and manage research and development activities. Through SWOT, analyses identified the main constraints for each of the sub sectors in order of priority is as follows:

- |           |  |
|-----------|--|
| Crops:    | <ol style="list-style-type: none"> <li>(i) improvement to currently used varieties and cultivars,</li> <li>(ii) improved cultural techniques</li> <li>(iii) agricultural zoning</li> <li>(iv) pests and diseases, post harvest technologies</li> <li>(v) low soil fertility</li> </ol> |
| Livestock | <ol style="list-style-type: none"> <li>(i) improvement to animal husbandry practices</li> </ol>  |

	(ii)	disease control
	(iii)	animal breeding
	(iv)	socio-economics, public health and animal waste management
Fisheries	(i)	techniques for aquaculture production
	(ii)	better management and protection of aquatic resources
	(iii)	socio economics of fisheries
Forestry	(i)	forest resource management and conservation
	(ii)	rehabilitation and restoration of degraded forest
	(iii)	community based management of forest resources
Agro-industry	(i)	quality, price, and services in the market
	(ii)	farming, planning and services in agro-industrial development
	(iii)	food processing and storage
Rubber	(i)	improved selection of rubber clones
	(ii)	physiology agronomy of rubber trees and plantations
	(iii)	chemistry of rubber production

## **Action to overcome**

### Crop research

Cropping research program focus on (i) rice based farming systems, (ii) up-land farming systems, (iii) plant genetic resources conservation and utilization of selected plants, (iv) vegetables and maize and (v) fruit tree and industrial crops (Annex1).

### Livestock research

Livestock research program focus on (i) animal feed improvement and management, (ii) improve animal diseases controls, (iii) animal breeding development, (iii) animal socio-economic study, (iv) zoonosis and public health improvement and (v) animal waste management (annex 1).

### Fishery research

Fishery research programme focus on (i) fish seed and aquaculture development, (ii) biology, habitat, conservation and fish resources management, (iii) fishery Socio-economic development study.

### Agro-industry

Agri-business research programme focus on (i) agro-business development (quality, price, services, and market), (ii) agro-industrial development (farming, planning and services) and (iii) food processing development study.

### Forestry research

Forest research programme focus on (i) forest resources management and conservation, (ii) rehabilitation and restoration of degraded natural forest and logged areas and (iii) community-based management of forest resources development.

### Rubber research

Rubber research programme focus on (i) improvement and selection of rubber plantation, (ii) exploitation and physiology, (iii) agronomy study for rubber plantation and (iv) quality testing of rubber production through development of chemistry technology.

## **2.2. Agricultural Extension**

### **Constraints:**

Extension workers and field staff to work with farmers, but are unable to mobilize many existing staff because of a lack of resources such as fuel for vehicles. They lack the facilities (e.g. training centers and demonstration farms) and networks to disseminate technology, and the linkages between research, development and extension are weak. Hence, extension services are weak overall. As a result, farmers have limited awareness of and access to agricultural and water management technologies, and poor skills in agricultural production and water management.

### **Action to overcome:**

- 1) Expand MAFF agricultural and livestock extension, farmer field based education/training, and field experiment services targeted to smallholder farmers, to all provinces and districts. Increase the capacity of extension workers to work with smallholder farmers to increase rice productivity, crop diversification, and productivity of non-rice crops, upland agriculture systems, and livestock.
- 2) Develop extension facilities and systems at all provinces in Cambodia (training centers);
- 3) Providing training of trainers on extension methodologies and agricultural technical aspects at least 20% of women participants;
- 4) Conduct farmer training of trainers on extension in 24 provinces in Cambodia including 40% of women.
- 5) Expand nationwide of AEA and integrate AEA in commune planning process through AEA training and exercises;
- 6) Establishing of farmer development communities in 24 provinces;
- 7) Improve and upgrade agricultural extension materials and mass media in Cambodia;
- 8) Improving M&E systems of agricultural extension in Cambodia

## **3. Improve market access for agricultural products**

### **Constraints**

Most farmers face difficulties in selling their surplus produce at a reasonable price. This is attributed to weak linkages between producers and markets. Market side weaknesses include undeveloped marketing systems, unfair trade, limited wholesaling, and bulking facilities, small-scale transport, information asymmetry among stakeholders, and inefficient product distribution systems. Production side weaknesses include low product quality, and unreliable supply to the market. The bulking process and bulk transport of produce normally are organized by entrepreneurs, or communally where there is strong community solidarity. At present, such activities are found only in rice marketing for export by large entrepreneurs.

In the agri-business sub-sector, the primary binding factor is identified (WB 2006) as weak governance: excessive unofficial fees either prevent profitability or render private returns too uncertain, and because unofficial fees tend to rise exponentially with the scale of operations, they inhibit expansion and growth. Access to, and cost of, credit are identified as second-order binding constraints.

There has further been limited diversification of agricultural production in Cambodia, mostly due to the limited marketability of non-rice crops. Rice is the most secure crop, particularly because it is non-perishable and can be stored for sale when prices are higher, or kept for home consumption if it is not sold. Farmers are exposed to much higher risks with non-rice crops, in both domestic and international markets.

**Action to overcome:**

For improving market opportunity and access for agricultural products to ensure the sustainable of economic growth and market access and employment for rural farmers and improve agricultural safety standards the following action will be carried out:

- 1) Establish plant quarantine and animal sanitary checking points at each govt. checking points;
- 2) Improve the capacity of WATO and ASEAN units of MAFF to implement WTO and ASEAN compliance document and agreements;
- 3) Development of standards of food safety from agricultural products;
- 4) Strengthen implementation of sanitary and phyto-sanitary services;
- 5) Expand complimentary investment in rural infrastructures: road, markets and farm-to-market roads and tracks and rural electricity support to processing;
- 6) Promote commercially viable community-based rural financial systems (MFIs) to meet the needs of agribusiness and SMEs;
- 7) Restructuring and divestment/privatization of Rubber State Enterprises (develop law and legislations);
- 8) Promote smallholder rubber plantation;
- 9) Provide technique on agro-processing and agribusiness understanding
- 10) Strengthen and improve agricultural statistics information systems in Cambodia;
- 11) Strengthen and improve agricultural marketing information systems in Cambodia;
- 12) Increase capacity of MAFF/AMO provincial offices, DAEs and other relevant groups in the provision of marketing services
- 13) Increase farm-to-market linkages through enhanced capacity of producer groups, collector-trades and advanced farmers to provided marketing information services to farmers.

#### **4. Strengthen institutional and legislation frameworks**

##### **Constraints**

MAFF has large numbers of staff, but the ministry is not able to mobilize their staff effectively. Management is weak, many staff has limited skills and experience, and low salaries are a major disincentive to staff. Coordination with and influence over other agencies and stakeholders is limited, so that the ministries have difficulty in achieving their sectoral objectives. Policy and regulatory frameworks related to agriculture, water resources and natural resources management (land, forestry,

fisheries, protected areas, water, environment, food safety standard, etc) require strengthening. Weak extension and research capacity in agriculture and water management constrains technical support to farmers, for example in terms of crop production methods suited to water availability in a particular area. As a result, farmers' knowledge and skills remain low, and they are unable to benefit from technical opportunities. Institutional weaknesses also constrain the distribution and marketing of agricultural products, in terms of unfair trade and unsafe food, for example.

### **Action to overcome**

In order to ensure adequate and efficient of institutional management standards and legislation standards, work performance by improving and strengthening institution and legislation frameworks with the following actions:

### **Institutional framework**

- 1) Strengthen personal staffs in technical skills, admin, HRD and management including 30% of women;
- 2) Promote In-country graduate training in agriculture and related skills including 30% of women in agricultural university and national schools;
- 3) Strengthen efficacy of administration and technical Management through training H.R;
- 4) Develop capacity to build and manage the projects/programs and to upgrade efficacy of responsibility;
- 5) Train selected farmer to provide service as village Animal Health work.
- 6) Improve coordination and linkages between research and extension by establishing linked networks;
- 7) Strengthen agricultural information and document center (AIDOC) for exchange and share information with stakeholders;
- 8) Strengthen and improve policy planning and M&E units of agriculture, forestry and fisheries through technical assistance projects and develop long-term master plan of agricultural sector;
- 9) Implementing gender mainstreaming policy in agriculture sector by:
  - Increase the gender awareness of ministry staff in the MAFF at every level of the agriculture sector.
  - Integration of gender analysis and sex disaggregated targets and data into the planning of the agriculture sector.
  - Increase the authoritative possibilities and number of women that have the adequate attributes necessary for leadership positions in the MAFF
  - Increase the ability of rural women to access and manage resources and agricultural services.
- 10) Reorganization physical structure and rationalization of roles and responsibilities within the ministry of agriculture, forestry and fisheries;
- 11) Encourage planning and budget reform concerning with the MTEF framework.
- 12) Review, amendments and develop legislations of agriculture, fisheries forestry and land use planning.
- 13) Law enforcement implementation of agriculture, forestry, fisheries and land use
- 14) Formulate adequate legal framework of Livestock act.
- 15) Formulate adequate legislation of food safety originated from Animal.

## **5. Land reform**

Land and water are two fundamental natural resources for agricultural development. Land reform has two strategic goal (i) land tenure and land market development and (ii) pro-poor land access.

### **Constraints**

The current agrarian and rural structure in Cambodia may not be suitable yet for production which oriented toward to market demand and competition. There are many landless farmers (around 400,000) and are increasing lately in Cambodia. It is difficult for many farmers to secure enough land for their production, while there are many unused lands especially in state land area. The average land holding size is around 1 ha, but most land holders are not entitled to use their land officially. Even land distribution has not yet been realized in Cambodia. Under such insecure land condition, it is difficult for farmers to invest their resources in their cultivating land without anxieties, especially for longer term in perennial crops land.

Agricultural land holdings are very limited in size, typically comprising of less than 1.0 hectare and often as little as only 0.5 or less of cropland per household. The term "small-hold" farming household is usually used in a Cambodian context to refer to those households with  $\leq 0.5$  hectares of cropland per household. These smallholder-farming households are typically suffering chronic food insecurity. The vast majority of farmers do not have secure land tenure at law for their agricultural land. In mine-affected areas, landmine/UXO hazards continue to deny access to land and natural resources rural people need, and continue to inflict casualties on rural people.

### **Action to overcomes**

- 1) Continue jointly discuss and develop the required legal frameworks for effective implementation of the land law and legislations.
- 2) Continue to discuss and develop the required legal framework for effective implementation of the Land Law;
- 3) Joint develop policies and procedures on registration of indigenous people's rights;
- 4) Joint improve and implement land registration procedures for systematic titling and sporadic titling and issue titles for at least 32% of land parcels (urban and rural) by 2010;
- 5) Joint implement the sub-decree on state land management, particularly in the area of identification, classification and establishing land maps and inventory;
- 6) Review the existing economic land concessions and make them consistent with guidelines stipulated in the sub-decree on economic land concessions;
- 7) Develop land capability and suitability classifications for contributing land use planning and
- 8) Promote agricultural development programme in mine-affected areas

## **6. Fishery reform**

### **Constraints**

The harvest of wild fisheries (both paddy field and riverine) is the major source of protein in the diet of rural Cambodians. Out of season, rural people depend on

buying fresh and processed fish from these same wild fisheries. Aquaculture, while expanding, is not yet a common alternative source of fish in Cambodia.

Concerning harvesting wild fisheries, rural people in many areas have had to face the arbitrary illegal enclosure of these commons areas, denying them access, and then witness the severe degradation of the fisheries they previously used through over-exploitation without effective recourse to the law. The main actors in the degradation of common property resources have been private commercial interests acting illegally.

Fishery sub-sector is lack of fishing ground for local farmers and inadequate information about fishing lot boundaries and protected areas and fishing community boundaries; limited protection of aquatic habitat (fish sanctuaries) and destructive fishing practices, fish habitat and flooded forest destruction, limited awareness of fish conservation, information and knowledge from research studies; and weak enforcement of fishery policy and regulation and limited experience in community management, including the size of fishing lots and the use of prohibited fishing tools etc.

For fishery development is inadequate, insufficient service to provide aquaculture technologies, aquaculture technology is slowly developed, and the capacity of national and provincial hatchery station is inadequate. Concerning the fish quality and safety is remaining traditional fish processing technology, poor of quality and sanitary fish product, lack of quality control measure and lack of policy framework to ensure fish sanitary products.

### **Action to overcome**

- 1) Enable and strengthen community-based development of fisheries sector by empowering local communities so that farmers can participate directly, actively and equitably in fishery plans, programmes and management, and to avoid over-fishing;
- 2) Improve livelihood of poor people by enhancing their capacity to more effectively use fish after capture through better fish processing, handling, storage, transportation and trade.
- 3) Transform fishing lots whose concession contracts have expired into fish sanctuaries, thereby to increase natural fish stocks, and conserve endangered species;
- 4) Protect freshwater fisheries by sustaining the bodies of water, in terms of both quality and quantity, on which they depend; and
- 5) Encourage and promote private sector aquaculture to respond to the needs for fish, at the same time to decrease pressure on natural fisheries.
- 6) Strengthen law enforcement, increase public awareness the importance of fisheries resources, and replant flooded reforest.
- 7) Promoting aquaculture development through fish pond and rice fish cultures, training and establishing of local hatchery stations.
- 8) Promoting aquaculture development industry (inland and marine) and
- 9) Establishing management system to ensure quality standard of fisheries products;

## 7. Forestry reforms

Every effort will be made to *maintain total forest coverage* at 60% of land area and to continue reforestation, besides suspending issue of any concessions and keeping a strict watch over existing concessionaires to ensure that they submit Strategic Forest Management Plan (SFMP) along with the Environment and Social Assessment (ESIA) and, after approval, continue to adhere to them. The challenge is to spell out a clear strategy to address management of concessions, annual coupes, community forests, and protected areas in a sustainable manner based on the following three pillars:

- 1) Sustainable forest management policy to ensure the rational and strict monitoring of forest exploitation according to international best practices in forest management, to provide adequate forest reserves for domestic consumption, protection against drought and floods as well as preservation of wetlands, which 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 programme.

### Promote conservation and management of sustainable forests

#### Constraint

Many constraints are occurred in forestry management and conservation including weak enforcement of the forestry legal and regulatory framework, including respect for rights of communities/ethnic minorities to use forest resources, lack of transparent monitoring process for sustainability of forestry exploitations, lack of forest demarcation and classification; little participation from private sector and limited community/government motivation for forest planting/ reforestation especially indigenous species; limited public awareness on forestry; limited value-adding/efficient use of forest products; lack of extension and forest seedling (nurseries) supply services in communities; and lack of infrastructures for local forestry administration. Rural people in many areas have had to face the arbitrary illegal enclosure of these commons forest areas, denying them access, and severe degradation of the forest resources through over-exploitation has occurred without effective recourse to the law.

#### Action to overcome

To achieve overall goals in the forestry sector, the following will be pursued;

- 1) Strengthening of forestry management and conservation;
- 2) Promoting man-made plantation to substitute for national forest demands by encouraging private investment and public participation;
- 3) Promoting forestry contribution to social and economic development;
- 4) Promoting forestry contribution to poverty reduction by strengthening community forestry initiatives and by involving local communities in forest exploitation plans;

- 5) Creating public awareness to add to, replant and use community plantations for firewood and charcoal needs and not destroy forests.
- 6) Disseminate awareness of forestry policy and statement of the RGC forestry sector policy at all levels: provincial, districts and communities
- 7) Strengthen forestry authority structures for effectiveness and efficiency implementation at all levels;
- 8) Improve and strengthen extension and forest nursery stations in each commune forestry office in Cambodia.
- 9) Promote reforestation and rehabilitation of degraded forest areas in all provinces.
- 10) Improve technical laboratory capacity for research and study of forest goods (furniture) and processing products for market requirement;

## **Ensure better management of natural protected areas**

### **Constraints**

Management and conservation of protected areas are faced many constraints such as limited inputs and lack of capacity, increased pressure land use for economic development and for agriculture and illegal forest land grabbing and encroachment, natural disasters (floods, drought and fire) and lack of participation coordination of stakeholders e.g. government agencies, local authority and farmer communities...etc.

### **Action to overcomes**

- 1) All investment projects related to forestry sectors have to fully conduct social and environmental impact assessments;
- 2) Promote the forest law enforcement particularly the anarchy in forest cutting, wide clearance of forest for Agriculture Land/ownership;
- 3) Strengthen and improve awareness of protected areas management and conservation to all stakeholders and people.

## **H. MAFF BUDGETING PLAN FOR DEVELOPMENT PROCESS**

The financial sources for agricultural development would be available from national budget and foreign aids & assistances. Public investment program in 2001 to 2003 allocated for agriculture sector is totally 210 million US\$ and proposed investment in the second socio-economic development program (SEDP-II) 2001-2005 is 500 million US\$, and about 27 million US\$ was planned in the national poverty reduction strategy (NPRS) 2003-2005.

Therefore, in order to achieve the development goal/objectives, MAFF has to prioritize the programs/projects and allocate appropriate budget to support programs/projects during 2006-2010 and there will be a strong commitment of government with technical and financial assistance from donor communities, external development partners, NGOs and civil societies including private sectors, and participation from local authorities and farmer communities.

In the agricultural sector strategic development plan 2006-2010, MAFF has proposed main prioritized programs/projects by sector and sub-sector programs with appropriate budget package allocation to support the implementation of programs/projects during 2006-2010 with total budget of **153,275,000.00 US\$**.

The total budget is allocated **94,500,000.00 US\$** for improving food security, productivity and diversifying agriculture, **16,316,000.00 US\$** for improving agricultural research and extension services, **13,150,000.00 US\$** for improving market access for agricultural products, **13,989,000.00 US\$** for improving institutional and legislation frameworks, **5,020,000.00 US\$** for improving land reforms, **4,000,000.00 US\$** for improving fishery reforms, and **6,300,000 US\$** for improving forestry reforms and for sustainable management of protected areas.

## **K. MONITORING & EVALUATION**

Referring to experiences, in particular achievement and assessment of SEDP-II 2001-2005, it is indicated that monitoring & evaluation is the crucial elements to ensure the project implementation and the indicators for verifying will be set properly in the project planning and design.

It is very important tools for verifying all outcomes and output indicators, in mid-term and full term, of the project implementation and that will be reflected to support the sectoral policy as well as national policy. Ministry of Planning advised to include the column of outcomes and output indicators for monitoring and evaluation in mid-term and full term of the national strategic development plan 2006-2010.

However, agricultural sector strategic development plan 2006-2010 would be expressed and indicated several indicators for supporting to verify the outcomes and outputs of implementation. (See NSDP 2006-2010 result matrix).

To make sure that monitoring and evaluation will be fully carried out, the Department of Planning & Statistics of MAFF has a main role to implement this activity. The report of the work progress for those projects will be made during the implementation and post evaluation.

## **L. CONCLUSION**

Agricultural sector is played important role to insure food security, poverty reduction and economic development through promoting agricultural intensification and diversification, and ensuring the sustainable natural resources management and conservation. In order to achieve the medium term of strategic plan, MAFF needs the support and assistance from the Government of Cambodia and donor communities in terms of financial support and technical assistance to improve agricultural production and to strengthen the human resources development, agricultural research and development infrastructure & institutions, and services. With the growth of public investment emerged from financial supports, the strengthening capacity for the project management and implementation as well as human resource development will be improving gradually.

Base on the strategic development plan for increasing of agricultural productivity, RGC as well as MAFF promotes support services such as agricultural research and extension, market development of agricultural products, distribution of input supply including seeds, fertilizers and rural credits. RGC will accord special emphasis on directing public investment and encouraging private investment in agriculture sector in order to increasing quantity and quality of agricultural products toward international standards.

The agricultural sector strategic development plan 2006-2010 will be defining as compass in 5 year mission which involved all sectors and sub-sectors under MAFF and institution concerned including public and private institutions. The participation of private sector in particular in agriculture is very important. The Government will also provide support for agriculture sector to serve as dynamic driving force for economic growth and poverty reduction with investment and using of substantial domestic resources to booster economic growth. The promotion and development of economic land concession for agro-industry crops depends on proper management and more efforts would be address to the solving of land disputes. This document also indicated the strength and constraint and actions to overcome the constraints, the expected outputs, especially inputs and outputs indicators and means of verification in mid-term and full-term operation, the budget for operation and timeframe to be successfully achieved.

The agricultural sector strategic development plan 2006-2010 will be greatly useful in an implementation direction and provide more credible and transparent for donor communities to contribute the resources in the priority activities for agricultural development as well as Cambodia economic growth.



## ANNEX: 1 Matrix of Agricultural Sector Strategic Development Plan 2006-2010

Rectangular Strategy (RS)/ Elements of RS	Goals/Targets	Identified Constraints	Action to overcome the constraints	Costing US\$	Monitoring and Evaluation	
					Output Indicators (Mid-Term Review)	Outcome Indicators (Full-Term Review)
1. Enhancement of Agricultural Sector						
1a.Improving productivity and diversifying agricultural sector	<b>1. Food security, productivity, diversification</b>  Ensure food security for all people; increase income and livelihood for rural poor population by improving productivity and diversification of agriculture.	-35% of Cambodia people live under poverty line and 20% under food security	-Up-scaling the national programme for food security and poverty reduction	51,000,000	2 million people have food availability	2 million people have food availability and access
		-Limited access to land and other natural resources (forestry, water and fisheries)	-Improve 100,000 ha irrigation systems in potential production areas of irrigated and rain-fed areas, and promoting the participatory water management.	5,000,000	- Percentage of irrigation areas were increased	- Increase crop yields and production.
			-Promote higher return from irrigated and rain-fed agriculture through improved farming practices crop intensification and diversifications and support to food distribution and marketing	2,000,000	- Improved food availability and access for food shortage areas.	Food availability, access and utilization improved within country.
		-Limited participation of farmers in operation and maintenance of irrigation facilities	-Implementing of the participatory water management programme in existing irrigation systems (in 20% of cultivated area)	1,000,000	-Existing irrigation areas were well O&M	- Irrigated areas and crops yield increased
		-Agriculture is mainly rain-fed	-Establishing of disaster preparedness for risk reduction and disaster management of drought and flood impact (pumping, seeds, fertilizers, vaccines)	1,000,000	Disasters (floods and drought) were prevented	Reduced risk and affect areas by disasters.
		-Lack of comprehensive understanding of land suitability for crops	-Develop land capability and suitability classification for contributing to crop zoning and land use planning.	3,000,000	- Land and soil types by crops were identified	- Crop zoning and land planning were developed

Food-insecure households are able to increase food availability from their own agriculture and livestock production, common property fisheries and common property forests.	- Poor soil fertility characteristics limit crop production (in 50% of national agricultural lands)	-Improve soil fertility management and conservation management program for all cropping ecosystems: rain fed lowland, flat plain and upland	2,000,000	- Soil fertility and soil productivity were improved.	- Crop yield and production increased
	-The productivity of rice and other crops is low and is at risk of drought, flood, pest and post-harvest losses.	-Improve and promote rice and other crops intensification by using integrated crop management, IPM, and SRI techniques.	2,000,000	- Rice yield increase to 2.2 t/ha	- Rice yield increased 2.4 t/ha
		-Rehabilitation of agricultural research stations and agricultural development centers (rice, cash crops, and fruit trees).	2,000,000	-3 state farms, 7 ARSs and 5 ADCs were renovated	- Improved production inputs and services
	- Weak post-harvest technologies	- Improve post-harvest technologies in Cambodia.	1,000,000	Post-harvest technologies were improved	Improved quality production
	- Lack of appropriate technology for pest management	-Improve plant protection programme include integrated pest management and (include services, lab and training)	1,000,000	- Pest outbreaks were prevented	- Yields and quality production were increased.
	-Lack of access to agricultural/integrated farming system/agro-forestry/aquaculture/animal health and production extension and technology transfer (especially women and smallholders/poor farmers)	-Promote integrated farming system programme include cropping system, agro-forestry and crop-livestock and fish culture	1,000,000	- Practices of diversifications were identified.	- Food diet and nutrition were improved.
		- Expand of livestock extension services (including farmer training, technology development and transfers)	2,000,000	30% of Cambodia farmers improved food diets and incomes	50% of Cambodian farmers improved food diets and incomes
		- Develop radio-based livestock outbreak warning systems	1,000,000	Infection diseases of animal were managed	Infection diseases between animals and human were prevented.
	-Improve commercial animal production through improving animal breeds, feeds and animal husbandry facilities.	2,500,000	Access to animal breeds, feeds and facilities.	Meet market demand.	

			-Improve animal health and veterinary services programme (include training, village livestock agents, vaccines and drugs, labs services, and NAHPIC).	3,000,000	Animal health and sanitary were improved.	Animal morbidity and mortality rates were reduced
			-Strengthen and improve animal products and sanitary controls (include legislations, control and inspection, slaughterhouse improvement )	3,000,000	Infection diseases of animal were managed	Infection diseases between animals and human were prevented.
	- Lack of quality agricultural inputs		- Promote agricultural quality improvement programme: seeds (rice, cash crops and vegetables, fruit tree), fertilizers, pesticides.	3,000,000	- Quality agricultural inputs were improved	- Quantity and quality of products were improved.
			- Strengthen the capacity for the management of Agriculture materials standards including Technical based training the competent staff, Upgrading laboratory and support to control and law enforcement campaign.	100,000	-Quality inputs were well controls and registered.	- Farmer access to good quality inputs.
	- Limited agro-machinery supply and services		- Strengthen agricultural machinery sector by developing of agri-machinery workshop center for training and development at each agricultural production regions.	5,000,000	Farmers improved knowledge of O&M of agri. machinery	Improved agri-machinery services in agri production.
			- Provide training and extension of utilizing, operation and maintenances of agricultural machinery.	1,400,000	Number of staff and farmers will be trained in agri. machinery.	Improved agri-machinery services in agri production.
			- Strengthen management of agricultural machinery by developing of legislation of agricultural machinery managements.	500,000	Numbers of legislations will be developed.	Reduced risks of use of agri. machinery
			- Establish intervention groups of agricultural machinery for emergency assistance such as pumping, plugging.	1,000,000	Intervention teams were established.	Reduced affected areas by disasters
	Subtotal			<b>94,500,000</b>		
	<b>2. Improve and strengthen agricultural research and extension services</b>					
	<b>2.1. Research services</b>					
		- Capacity of research works and development of technologies are still low (crops, livestock, agro-industry, fisheries, forestry and rubber)				

Crop research	- Poor performance of local cultivars - Shortage of technical expertise - Limited research on crops - Improper use of land.	- - Rice based farming systems improvement programs -	1,750,000	High yield crops and appropriate techniques in place.	Yield and quality production increased	
	- Pests and diseases - Poor seed quality	- - Improvement of upland farming systems in Cambodia	850,000	High yield crops and appropriate techniques in place for upland	Yield and quality production increased	
	- Low soil fertility - Poor linkage between research and extension	- - Plant genetic resources conservation and utilization programme in Cambodia	214,000	Plant Genetic Resources of plants/crops were reviewed collected	PGR of plant and crops evaluated and conserved	
	- Lack of linkage between technical staff and farmers	- Improvement of vegetables and maize research programme	637,000	High yield varieties and appropriate techniques in place	Yield and quality production increased	
	- Low level of post harvest technology - Poor agro processing	- Fruit tree and industrial crop improvement programme	637,000	High yield crops and appropriate techniques in place.	Yield and quality production increased	
	- Livestock research	- Poor production systems, high mortality rates	- Animal feed improvement and management,	363,000	Local feeds available for animal	Animal feed availability and access
		- Inefficient small holder production systems, high mortality rates	- Improve animal diseases controls programme	369,000	Measurement of animal diseases were set up	Common animal diseases were prevented
		- Poor production systems, high mortality rates	- Animal breeding development	459,000	Animal breed were developed	Available and access to animal breeds for farmers
		- High mortality rates, insufficient veterinary services, lack of vaccines	- Zoonosis and public health improvement	270,000	Public health risks were measured.	Public health risks were controlled
			- Animal waste management programme	324,000	Existed systems to manage animal wastes	Animal waste were well managed
	-Fishery research	- Lack of techniques to produce fish feed, limited capacity to produce fish seed	- Fish seed and aquaculture development.	308,000	Fish seed available for farmers	Improve fishery products

		- Lack of knowledge of aquaculture, lack of expertise	- Biology, habitat, conservation and fish resources management	530,000	Available ecological and biological information	Fish, habitat were conserved and well managed
		- Lack of knowledge of fishing communities, Fishery community disputes	- fishery Socio-economic development study	480,000	Available ecological and biological information	Fish, habitat were conserved and well managed
	-Agro-industry research	- Poor production technologies, poor quality and high transport costs	- Agro-business development (quality, price, services and market)	490,000	Available information on agri-business	Market access for agricultural products.
		- Market information constraints, smuggling, poor access to agro-processing	- Agro-industrial development (farmings, planning and services)	395,000	Available information on agro-processing	SME on agro-processing were developed
		- Poor access to agro-processing	- Food processing development study	205,000	Available information on agro-processing	Food safety were improved
	-Forestry research	- Limited technical knowledge, ignorance of law in local populations	- Forest resources management and conservation	330,000	Available data on forestry management.	Available Procedures and guidelines for forestry conservation and management.
		- Lack of local fuelwood, ignorance of law by locals, local poverty, poor communication	- Rehabilitation and restoration of degraded natural forest and logged areas	330,000	Available data on reforestation	Reforestation areas were increased
		- Limited technical knowledge, Local poverty levels, poor communication	- community-based management of forest resources development.	436,000	Available and access information to local community	Number of forestry communities was developed and functioned.
	-Rubber research	- Lack of quality planting material	- improvement and selection of rubber plantation	97,000	Available and access clones for plantations.	Available and access clones for plantations.
		- Shortage of expertise; low investment on return; Poor efficiency of SOEs; high percentage of old trees	- exploitation and physiology research programme	98,000	Methods for tapping were developed	Tapping Techniques were used effective and efficiency.
			-Agronomy study for rubber plantation programme	105,000	Methods for planting were identified	Planting techniques were developed

		- Production sold at low prices; little support for small scale farmers, low return on investment	- Quality testing of rubber production through development of chemistry technology.	150,000	Chemistry testing methods were developed	Quality testing were available in the Cambodia
	<b>2.2. Extension services</b>	-Limited agricultural services in rural areas	- Expand agricultural and livestock extension, farmers trainings programme	1,000,000	Extension services were improved	Farmer access to extension services
		-Lack of women extension workers and transport to work at the field - Agricultural staff have not clear understand about gender in agriculture	Improve and Strengthen extension systems by: - Develop extension facilities and systems at all provinces in Cambodia (training centres)	1,200,000	12 Agricultural training centres will be renovated and developed	24 ATCs will be developed and well functioned
		- Farmers have not clear understand about agricultural extension	- Providing training of trainers on extension methodologies and agricultural technical aspects at least 20% of women participants.	296,000	803 extension workers were trained included 160 women	1606 well performed of extension workers include 320 women.
		- The knowledge of staff on agricultural extension and technical support are limited - Lack of training aid and teaching tools	- Conduct farmer training of trainers on extension in 24 provinces in Cambodia including 40% of women	858,000	13,156 farmer trainers were trained included 526 women	13,156 farmers will be facilitators in target villages.
		- Not clear understand the advantages of CAEA and agricultural budget planning of PDA is not harmonous - Late on formulation of group specialist of technical implementation package	- Expand nationwide of AEA and integrate AEA in commune planning process through AEA training and exercises	145,000	AEA will be integrated in commune planning process	Agricultural activities will be in all commune-planning.
		- Lack of farmer association management capacity	-Establishing of farmer development communities in 24 provinces.	1,171,000	Number of AFDCs was established and extension and marketing network were created.	One village one products will be promoted and extension and marketing will be strengthened.
		- Lack of skill on printing house and production extension material is limited	- Improve and upgrade agricultural extension materials and mass media in Cambodia	935,000	Number of extensions materials and media will be available	Access all extension information for farmers.
		- Lack of management and data analysis	- Improving M&E systems of agricultural extension in Cambodia.	370,000	M&E systems will be established	Extension performances will be improved.

		- Lack of access to credit for farmers with a low interest rate	- Provide Rural credit for producing upland crops, paddy growing and supply business	514,000	All 968 membership families will get credit for producing upland crops, paddy growing and supply business each family with low interest rate	Income of all 968 membership families will increase from 500\$ for upland crop producers and 300\$ for rice producers per year
Subtotal				<b>16,316,000</b>		
	<b>3. Market access for agricultural products</b>					
	-Improve market opportunity and access for agricultural products to ensure the sustainable of economic growth and market access and employment for rural farmers	-Lack of plant quarantine facilities and animal sanitary and checking points to controls SPS. -Poor knowledge of preservation of agricultural products	- Establish plant quarantine and animal sanitary checking points at each govt. checking points.	4,000,000	Plant and animal quarantines checking points were established.	SPS services were improved and well operated.
	-Improve agricultural safety standard		- Improve the capacity of WATO and ASEAN units of MAFF to implement WTO and ASEAN compliance document and agreements.	500,000	WATO and ASEAN units were upgraded.	Agri-trade was smoothly harmonized with WTO and AFTA requirement.
			- Development of standards of food safety from agricultural products	200,000	Legislations of food safety approved.	Legislation approved and inspection agencies identified.
			- Strengthen implementation of sanitary and phyto-sanitary services.	1,000,000	capacity of SPS services improved	Agricultural process access to markets.
			- Provide techniques on preservation of agricultural products esp. through post harvest technologies by field demonstration to rural farmers and traders for food safety and for markets. - provide technique on quality analysis and on safety analysis through HCCP method	1,500,000	Traders and rural growers of short, vegetables, and fruits in 3 potential provinces will obtain these techniques.	30% agriculture raw material products from these areas are minimized of chemical residues and pesticide

		-Lack of market infrastructures, processing facility and technology, roads	-Expand complimentary investment in rural infrastructures: road, markets and farm-to-market roads and tracks and rural electricity support to processing.	To be defined by MRD	To be defined by MRD	To be defined by MRD
			- Promote commercially viable community-based rural financial systems (MFIs) to meet the needs of agribusiness and SMEs.	To be defined by MRD	To be defined by MRD	To be defined by MRD
			- Restructuring and privatization of Rubber state Enterprises ( develop law and legislations	30,000	1 rubber law and 2 sub-degree developed.	7 rubber state companies were fully to public enterprises.
			- Promote smallholder rubber plantation	1,290,000	400 farmers planted rubber 1,250 ha.	800 farmers planted 2,500 ha
			-Provide technique on agro-processing and agribusiness understanding	500,000	350 traders and rural grower of crops, vegetables, and fruits in 3 potential province	750 traders and rural grower of crops, vegetables, and fruits in 3 potential province
			-Construct wholesaler market in PP city	1,500,000	A wholesaler market for vegetables and fruits in PP will be constructed completely	Cambodia will have a wholesaler market for sale vegetable and fruits.
		- Limited agricultural, forestry and fisheries statistics and marketing information	- Strengthen and improve agricultural statistics information systems in Cambodia	1,500,000	Agri-statistics info. were improved	Agri-statistics were improved and upgraded
		- Poor fish processing techniques, poor quality and sanitary of fish products, and lack of capacity and facilities of fish processing.	-Strengthen and upgrade capacity building of agro-industry and agribusiness including legislations, training, lab facilities)	630,000	Agro-industry sectors improved	Agribusiness and SME well functioned.
			-Establishing policy frame work for post harvest management, and management system to ensure quality standard of fisheries product	500,000	Policy framework for the management of post will established	The ability of fish processing will be developed and fish waste during post harvest will reduced

		- Encourage private sector to invest in agro-industry and agro-processing and agribusiness.	By private sectors	Agricultural products improved	Farmers access job and incomes improved.
		-Improve post-harvest technologies of agricultural products, fish and livestock products.	500,000	Quality of products improved and access to markets.	Products and commodities access to markets.
	Subtotal goal 3:		<b>13,150,000</b>		
	<b>4. Institutional and legislative framework</b>	- Limited human resource capacity			
		- Strengthen personal staffs in technical skills, admin, HRD and management including 30% of women.	286,000	300 staffs upgraded skills and management	600 staffs upgraded skills and management
	-To ensure adequate and efficient of institutional management standards and legislation standards, work performance by improving and strengthening institution and legislation frameworks.	- Promote In-country graduate training in agriculture and related skills including 30% of women in agricultural university and national schools.	5,000,000	1,500 students studied in agriculture and related skills.	1,500 students graduated in agriculture and related skills.
		-Strengthen efficacy of administration and technical Management through training H.R -To develop capacity to build Project and to upgrade efficacy of responsibility -To train selected farmer to provide service as village Animal Health work.	250,000	- Capacity of staff of DAHP will be developed - Many Project were built consecutively -At least 2000 selected farmers will be trained to provide services as village AHW	Administration and Technical Management through grass root will be implemented effectively. Animal Husbandry and its productivity will be improved.
		- Lack of coordination between Limited agricultural, fisheries and forestry research and extension (and weak connection to extension).			
		- Improve coordination and linkages between research and extension by establishing linked networks.	1,000,000	Linked network established	Research and extension systems well performed.
		- Strengthen agricultural information and document center (AIDOC) for exchange and share information with stakeholders.	2,000,000	AIDOC well functioned	Information well exchange and share with all stakeholders.

Gender mainstreaming	- Limited role of women in decision making and advocacy in MAFF	-Implementing gender-mainstreaming policy in agriculture sector (trainings, workshops...) 1).Increase the gender awareness of ministry staff in the MAFF at every level of the agriculture sector.	400,000	Gender unit was established and functioned	100% of new staff aware gender issues
		2). Integration of gender analysis and sex disaggregated targets and data into the planning of the agriculture sector.	500,000	Gender issues were integrated in annual plan of MAFF	100% of annual plan of MAFF disaggregated sex
		3). Increase the authoritative possibilities and number of women that have the adequate attributes necessary for leadership positions in the MAFF	500,000	Recruitment and promotion staff were revised align with gender policy	Increased percentage of women in MAFF at all levels
		4). Increase the ability of rural women to access and manage resources and agricultural services.	53,000	Extension from MAFF have gender proportion	Rural women increased incomes
	- Lack of policy/regulatory frameworks related to agriculture and natural resources management (land, forestry, fisheries, protected areas, water, environment, food safety standard, livestock etc)	- Strengthen and improve policy planning and M&E units of agriculture, forestry and fisheries through technical assistance projects and develop long-term master plan of agricultural sector	2,500,000	Long-term master plan developed	Master plan implemented
		-Formulate adequate legal framework of Livestock act. -Formulate adequate legislation of food safety originated from Animal	100,000	A legal framework of livestock act will be established	Animal productivity and diversification will be improved public Health use Animal Products was safety.
	- Inadequate legislations and legal framework to measures and manage fisheries resources and poor awareness of fishery legislations from farmers. - Insufficient law enforcement, and limited enforcement capacity	-Review, amendments and develop legislations of agriculture, fisheries and forestry and land use planning. -Law enforcement implementation of agriculture, forestry, fisheries and land use.	1,000,000	A number of legislations developed and approved.	Productions, services and market of agriculture improved.

		-Lack of institutional coordination and responsibility and lack of clarity about public, private sectors and community roles	-Rationalization of roles and responsibilities within the ministry of agriculture, forestry and fisheries.	200,000	Existing roles and responsibilities reviewed	Clear roles and responsibility defined.
			- Encourage planning and budget reform concerning with the MTEF framework.	200,000	Planning and budget has integrated.	Budgeting clearly allocated.
		Subtotal goal 4		<b>13,989,000</b>		
1b.Land Reform and Mines Clearance	<p><b>5.Land reform :</b></p> <p>5.1. Land tenure and land market development:</p> <p>-Ensure the access of land resources for the rural poor farmers by improving land tenure security and land market, and reduce land disputes.</p> <p>-Ensure effective use of land for socio-economic development and the protection, and sustainable use of land resource through promoting land reform.</p>	<p>- Lack of a comprehensive land use planning policy</p> <p>- Inadequate land policy and legal framework, especially the necessary supplementing legislations and sub-decrees, rules and regulations for implementing the Land Law.</p> <p>- Most lands have not been registered, especially state land and that of indigenous people;</p> <p>- Many complicated land litigations and conflicts</p>	<p>- Continue jointly discuss and develop the required legal frameworks for effective implementation of the land law and legislations.</p> <p>- Continue to discuss and develop the required legal framework for effective implementation of the Land Law;</p> <p>- Joint develop policies and procedures on registration of indigenous people's rights;</p> <p>- Joint improve and implement land registration procedures for systematic titling and sporadic titling and issue titles for at least 32% of land parcels (urban and rural) by 2010;</p> <p>-Joint implement the sub-decree on state land management, particularly in the area of identification, classification and establishing land maps and inventory;</p>	1,000,000	Sub-degree promulgated and unused lands were reviewed and initiated transfer. Available land legislation and procedures for land management	<p>Ability of smallholder improved.</p> <p>32% of people have land title</p>
	<p>5.2. Pro-poor land access</p> <p>-Create possibilities for the poor household to have land for residence/family farming and improve state land management</p>		Review the existing economic land concessions and make them consistent with guidelines stipulated in the sub-decree on economic land concessions.	20,000	Land concessions were well management.	Sustainable land resources used in agriculture.

	-Ensure sustainable access of land resource for the rural poor farmer by promoting land reform	<ul style="list-style-type: none"> <li>- No clear boundaries on state land and no identification of state and public land of the state</li> <li>- Many rural families, especially those headed by women and widows, are either landless or do not have enough land for subsistence cultivation.</li> </ul>	<ul style="list-style-type: none"> <li>- Develop land capability and suitability classifications for contributing land use planning</li> <li>-Promote agricultural development programme in mine-affected areas</li> </ul>	as mentioned in goal 1	as mentioned in goal 1	as mentioned in goal 1
		<b>Subtotal Goal 5</b>		<b>5,020,000</b>		
1c. Fisheries Reform	<b>6. Fisheries reform - sustainable access:</b> -Ensure sustainable access to fisheries resources for rural poor population by encouraging fisheries reform	<ul style="list-style-type: none"> <li>- Lack of fishing ground for local farmers, and inadequate information about fishing lot, protected areas and fishing community boundaries.</li> <li>- Limited protection of aquatic habitat (fish sanctuaries)</li> <li>- Destructive fishing practices, fish habitat and flooded forest destruction</li> <li>- Limited awareness of fish conservation, information and knowledge from research studies</li> <li>- Weak enforcement of fishery policy and regulation and limited experience in community management, including the size of fishing lots and the use of prohibited fishing tools etc.</li> </ul>	<ul style="list-style-type: none"> <li>- Enable and strengthen community-based development of fisheries sector by empowering local communities so that farmers can participate directly, actively and equitably in fishery plans, programmes and management, and to avoid over-fishing</li> <li>- Improve livelihood of poor people by enhancing their capacity to more effectively use fish after capture through better fish processing, handling, storage, transportation and trade.</li> <li>-Transform fishing lots whose concession contracts have expired into fish sanctuaries, thereby to increase natural fish stocks, and conserve endangered species;</li> <li>-Protect freshwater fisheries by sustaining the bodies of water, in terms of both quality and quantity, on which they depend</li> <li>- Encourage and promote private sector aquaculture to respond to the needs for fish, at the same time to decrease pressure on natural fisheries.</li> <li>-Strengthen law enforcement and increase public awareness the importance of fisheries resources and replant flooded reforest.</li> </ul>	700,000	Number of fisheries communities were develop	Reduced pressure on fishery resources
				500,000	Fishery diversity was sustainable management	Increases fishery bio-diversity
				700,000	Number fishing lots were transformed for communities	Community access to fishing ground for their livelihoods
				200,000	Private investment involved in aquacultures	Reduced pressure to natural fish and available fishery products
				200,000	People access fishery management information	Fishery and bio-diversity were well managed

		<ul style="list-style-type: none"> <li>- Insufficient service to provide aquaculture technologies</li> <li>- Aquaculture technology is slowly developed</li> <li>-The capacity of national and provincial hatchery station is inadequate.</li> <li>- Lack of investment in this sector</li> </ul>	<ul style="list-style-type: none"> <li>-Promoting aquaculture development through fish pond and rice fish cultures, training and establishing of local hatchery stations.</li> </ul>	500,000	Reduced pressure to natural fisheries and available fish seeds	People access to fishery resources for their livelihoods.
			<ul style="list-style-type: none"> <li>- Promoting aquaculture development industry (inland and marine)</li> </ul>	500,000	Reduced pressure to natural fisheries and available fish seeds	People access to fishery resources for their livelihoods.
			<ul style="list-style-type: none"> <li>- Establishing management system to ensure quality standard of fisheries products</li> </ul>	200,000	Fishery products standards were established	Fishery products access to external markets
		<b>Subtotal goal 6</b>		<b>4,000,000</b>		
1d. Forestry Reform	<b>7: Forestry reforms</b>					
	<ul style="list-style-type: none"> <li>- Sustainable forest management policy</li> </ul>	<ul style="list-style-type: none"> <li>- Weak enforcement of the forestry legal and regulatory framework, including respect for rights of communities/ethnic minorities to use forest resources</li> </ul>	<ul style="list-style-type: none"> <li>- Strengthening of forestry management, conservation, and development of sustainable forest management plans</li> </ul>	2,000,000	Forest management plan will be developed and disseminated	60% forest covers well conserved and managed
	<ul style="list-style-type: none"> <li>- Protected Area System to protect biodiversity and endangered species</li> </ul>	<ul style="list-style-type: none"> <li>- Little participation from private sector and limited community/govt motivation for forest planting/ reforestation especially indigenous species</li> </ul>	<ul style="list-style-type: none"> <li>- Promoting man-made plantation to substitute for national forest demands by encouraging private investment and public participation;</li> </ul>	100,000	Private sector and publics will involve reforestation	Increased 50,000 ha each year of forest lands
			<ul style="list-style-type: none"> <li>- Promoting forestry contribution to social and economic development</li> </ul>	100,000	Forest concessions will be reviewed	Forest concessions will be identified
	<ul style="list-style-type: none"> <li>- Community forestry as a sound, transparent and locally managed program</li> </ul>	<ul style="list-style-type: none"> <li>- Lack of transparent monitoring process for sustainability of forestry exploitation</li> <li>- Lack of forest demarcation and classification</li> </ul>	<ul style="list-style-type: none"> <li>- Promoting forestry contribution to poverty reduction by strengthening community forestry initiatives and by involving local communities in forest exploitation plans</li> </ul>	200,000	Number community forestry was established	Poor people access to forest resources for their livelihoods
		<ul style="list-style-type: none"> <li>- Limited public awareness on forestry</li> </ul>	<ul style="list-style-type: none"> <li>- Creating public awareness to add to, replant and use community plantations for firewood and charcoal needs and not destroy forests.</li> </ul>	300,000	50,000 people of each year aware the sustainable use of forest resources	Increased forest covered

			- Disseminate awareness of forestry policy and statement of the RGC forestry sector policy at all levels: provincial, districts and communities.	500,000	- 50,000 people of each year aware the advantages of forestry resources.	People participated forestry protection and conservation
		- Lack of infrastructures for local forestry administration	- Strengthen forestry authority structures for effectiveness and efficiency implementation at all levels;	500,000	Capacity of FA was improved	Forestry resources management were efficiency and effective
		- Lack of extension and forest seedling (nurseries) supply services in communities	- Improve and strengthen extension and forest nursery stations in each commune forestry office in Cambodia.	200,000	Number of nurseries and extension material were developed	People access to seedling and planting techniques
			- Promote reforestation and rehabilitation of degraded forest areas in all provinces.	1,000,000	50,000 ha each year was replanted tree	250,000 ha were planted trees.
		- Limited value-adding/efficient use of forest products	- Improve technical laboratory capacity for research and study of forest goods (furniture) and processing products for market requirement;	500,000	Forest goods and processing products were upgraded	Forest products were potentially used and access to markets.
	- Ensure the protection and sustainable use of land resource through producing data on land use, forest coverage, infrastructure, and geographical division in protected areas	- Lack of impact forest monitoring and adaptive management system	- Conduct social and environmental impact assessments of investment projects related to forestry sectors	500,000	Impact assessment information was developed	Clear guidelines for forest resources management
	- Ensure proper management of mangrove forest resources	- Weak enforcement of the forestry law and legislation frameworks	- Promote the forest law enforcement particularly the anarchy in forest cutting, wide clearance of forest for Agriculture Land/ownership;	200,000	Forest law and its procedures were effectively implemented	Increased forest covered
		- Weak management and conservation of the protected areas, watershed and biodiversity - Increased forestland conversion to economic land development surrounding PAs leading to increased pressures on PAs	- Provide education and training about awareness of protected areas management and conservation.	200,000	Bio-diversity in protected areas were sustained and improved	Protected areas became to eco-tourist

		<b>Subtotal goal 7</b>		<b>6,300,000</b>		
			<b>Grand Total</b>	<b><u>153,275,000</u></b>		

Annex 2. Preparing the “Agricultural Sector Strategic Development Plan (A SSDP) 2006 – 2010”

