

**REPORT ON
THE NATIONAL PROGRAM ASSESSMENT ON FOREST
OF LAO PDR**

By:

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Vientiane Capital, Lao PDR
June 15, 2009

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Executive Summary

The national program assessment has been conducted by Forestry Research Centre and partners, National Agriculture and Forest Research Institute, Ministry of Agriculture and Forestry with consultation of multi partnerships of several sectors related. This report provided information of among ASEAN member country, under support by ASEAN-Korea Environmental Cooperation Project, Ministry of Foreign Affairs and Trade and Ministry of Environment, Republic of Korea.

The main objectives of this report to review all information related to forestry sectors in each country, and for understanding between ASEAN member countries and Republic of Korea for future collaboration. The report present in to six parts such: present information, forest information, forest degradation control mechanism, capacities to address degradation problem, innovation approaches to address forest degradation, and recommendations.

The process of report were generated idea from planning work shop on third phase collaboration between ASEAN members countries, ASEAN Secretary of Environment Division and ROK in Seoul National University on October 2008, then followed by national workshop of 30 different institutions on January 2009 in Lao PDR.

Laos is small land locked country located in Indochina Peninsular; a total land area was 236,800 km². The climate mostly is tropical monsoon, 12 soil types' orders, and share international Mekong river system with China, Myanmar, Thailand, Cambodia and Vietnam. The administration divided in to 17 provinces, 1 municipality, 139 districts (72 poor districts and 47 poorest districts), 9,113 villages, and 982,485 families, approximately 6 million with 50.14% female and 49.86% male. However, 75% are living in rural areas, GDP USD 700 in 2007 and USD 813 in 2008.

Agriculture and Forestry sector goal 2006-2010 with 4 main target such (i) food security, (ii) commercial crops products, (iii) shifting cultivation stabilization, and (iv) sustainable forest management with three forest categories such conservation forest, protection forest, and production forest (natural forest, natural regeneration and plantation forests).

Before 1999, Department of Forestry and Environment as one department, under Ministry of Agriculture and Forestry; from between 1999-2006 Department of Environment under Sciences-Technology and Environment Agency; and in 2007 Department of Environment under Water Resources and Environment Agency of Prime Minister Office. The total of Agriculture land 1.2 million ha in 2002, it will expansion to 2 million ha in 2020.

Although Laos is rich forest resources among ASEAN member countries, forest cover in Laos has been decreasing from original 70% of total land area in 1940 to only 41.5% in 2002. The forest distribution to nationally not only income 6% of total GDP in between 1975-2005, but also climate, waters and environment to regional and international. There are two system of ecological description based on FAO, and WWF-IUCN. The definition of degraded forestland is clearly identified in Forestry Law (2007). The statistic showed that it rapidly decreased from dense forest 70% in early 1940s to 41.5% in 2002, forest loss during 62 years as 28.5%, with an average 0.44% per annum, degraded

forest was more than 6.3 million ha considered as secondary forest. The main drivers of forest degradation were: shifting cultivation, legal and illegal logging, large scale of land clearing for agriculture, and infrastructure development. The report summary of key constraints of forest restoration and rehabilitation were: a lack of clarify regarding procedures for plantation establishment, uncertainly over the sharing of cost and benefits associated with establishing and harvesting products from plantation, and limited financial resources and human capacity and lack of well development market.

The key issues on mechanism and policies are national land use and land management should be law and regulations enforcement by followed up Land Law, the system from central government to local area. However, the vision from several national strategy and the government programs, both the capacity of government and by support from international concerned.

Although, Lao PDR were in progressing and improved national capacity such: research and development, education and training, institutional capacity, and public awareness and participation on reduced degradation problems, but still slowly because government need to solving poverty by agriculture, forestry, hydro and mining developments.

The new challenges so far for Lao PDR in future after signed with UNFCCC, UNCCD, CBD, KP, CITES, CDM, REDD, etc. Therefore, may need to preparing the national strategy and action plan, mechanism, gathering all information, building capacity, and call for international support to implementing.

The authors sincerely thanks to AKECU to provided financial support to conducted national workshop, working group, data collection and preparing this report

Part I: Present Information (basic country information)

a. Geographic area (physiographic, soils, river systems)

Physiographic:

Lao PDR is a small land lock country, located in Indochina peninsular with the total of country land area: 236,800 Km²

Location of Lao PDR:

- Latitude: North latitude 22° 30', South latitude 13° 54', South-east latitude 15° 19', North-east latitude 20° 05', and West latitude 20°21'
- Longitude: North longitude 101° 46', South longitude 106° 06', South-east longitude 106° 38', North-east longitude 104° 59', and West latitude 100° 05'

Length of borders: China in the North 505 km, Kingdom of Cambodia in the south 535 km, Socialist Republic of Vietnam in the East 2069 km, Union of Myanmar in the North-west 236 km, and Kingdom of Thailand 1835 km

High mountains in Laos: Bia mountain 2820 m, Xao moun 2690 m, Xamxum 2620 m, Huat 2452 m, Soy 2257 m, Sane 2218 m, Laopy 2079 m, Pane 2079 m, Khaomieng 2007 m, Sanchantha 1972 m, Nameo 1937 m, Phakhao 1870 m, Doychy 1842 m, Leb 1761 m, Sang 1666 m, Chaputao 1588m, Phiengbolavanh 1284 m, and Khaokouai mountain 1026 m.

Climatology:

- Subtropical wet and dry: Phonsaly, Bokeo, Luangnamtha, Oudomxay, Luangprabang, Huaphanh, and Xiengkhouang.
- Tropical monsoon: Vientiane, Bolikhamxay, Khammouan, Xekong and Attapeu
- Tropical wet and dry: Vientiane Capital, Xayyabouly, Savanhnakhet, Saravane and Champasack.

Soils:

12 soil orders as below:

ARENOSOLS	233,154 ha	1.43%
FLUVISOLS	104,650 ha	0.45%
GREYSOLS	127,189 ha	0.54%
LEPTOSOLS	442,497 ha	1.80%
REGOSOLS	515,279 ha	0.94%
CAMBISOLS	2,353,227 ha	9.94%
SOLOCHACKS	7,503 ha	0.03%
SOLONETZ	5,945 ha	0.02%
ALISOLS	4,444,215 ha	18.77%

ACRISOLS	11,579,913 ha	48.90%
LIXISOLS	391,495 ha	1.63%
LUVISOLS	2,999,305 ha	12.67%

Source: Soil Research Centre, NAFRI 2001

Main rivers system:

International system as Mekong river 1,898 km (Laos-Thailand 919 km, Laos-Myanmar 236 km). While, National river system as Nam Ou 448 km, Nam Ngum 354 km, Nam Xebanhieng 338 km, Nam Tha 325 km, Nam Xekong 320 km, Nam Xebangphay 239 km, Nam Beng 215 km, Nam Xedone 192 km, Nam Xelanong 115 km, Nam Kading 103 km, and Nam Khane 90 km, etc. However, the water resources of Laos are of regional significance because 35% of the total water flows of the Mekong River are generated in the river catchments of the country, and high potential to build hydro electric in ASEAN region.

b. Demographics situation

- Administration in Laos divided in to 16 provinces and 1 Municipality, 139 districts; 9,113 villages; and 98,2485 households (NSD, 2007)
- No. of population 5,873, 616; female 2,945,050 (50.14%); and male 2,928,566 (49.86%); density 25 persons/km² (MPI, 2005)
- Age group in 2007

0-4	13.2	%
5-9	12.4	
10-14	13.1	
15-19	11.9	
20-24	9.4	
25-29	7.7	
30-34	6.4	
35-39	5.7	
40-44	4.9	
45-49	4.1	
50-54	3.3	
55-59	2.4	
60-64	1.8	
65-69	1.4	
70-74	1.0	
+75	1.3	

Crude birth rate/1,000 persons 32.6%, crude death rate/1000 persons 9.1%, rate national increase 2.4%, total fertility rate/1 women 4.2%, life expectancy at birth 62.5 %, infant mortality rate/1000 persons 64.4%, U5 mortality rate/1000 persons of life birth 88.6 %

c. Economic situation (including livelihood issues)

- Gross domestic products (GPD) 2007

Sector	Estimate	Rate
Agriculture, forestry and fishery	12 167 600 000 Kip	6.2%
Industry	10 255 592 000 kip	6.5 %
Secondary industry	15 155 847 000 kip	12.1%
All industries at basic prices	36 924 877 000 kip	8.0%

- Share of gross domestics products (GDP) 2007

Agriculture, forestry and fishery	30.8 %
Industry	26.0 %
Secondary industry	38.4 %
All industries at basic prices	93.5 %

- Gross domestic products (GPD) 2007 is 701 USD/capita and USD 813 in 2008

- Import 702 million USD, export 174 million USD, balance – 528 million USD

d. Environmental status

- 1975-1998 called Department of Forestry and Environment, under Ministry of Agriculture and Forestry
- 1999-2006 called Department of Environment, under Sciences, Technology and Environment Agency (STEA), Primer Minister Office
- 2007-up to date called Department of Environment, under Water Resources and Environment Agency (WREA), Primer Minister Office
- 1st National Forestry Conferences May 1989
- 1st National Tropical Forestry Action Plan 1990
- Established Sciences, Technology and Environment Agency 1999
- Environmental Law (Date 26 April, 1999), currently the new Environmental Law was revised in 2009
- Second ASEAN State of the Environment Report 2000
- First State of Environment Report 2001
- Environment Monitoring in Lao PDR 2005
- Established National Steering Committee on Climate Change 2008, chair by Deputy Prime Minister

e. Agricultural situation (e.g. Need for agricultural expansion?)

- Agricultural Law, No. 01/98.NA, date 10 October 1998
- Agriculture land:

Agriculture crops:

Rice paddy	604147 ha, product 2 193 400 tons (2007)
Irrigated rice	71400 ha, product 329 200 tons (2007)
Upland rice	105 696 ha, product 187 450 tons (2007)
Maize	154 255 ha, product 690 795 tons (2007)
Starchy roots	26455 ha, product 359 886 tons (2007)
Vegetable and bean	84355 ha, product 734 385 tons (2007)
Peanut	15965 ha, product 35 070 ton (2007)
Soybean	8040 ha, product 10 455 ton (2007)
Mungbean	2450 ha, product 2 470 tons (2007)
Tabacco	4700 ha, product 41 535 ton (2007)
Cotton	3205 ha, product 2 705 ton (2007)
Sugarcane	8455 ha, product 323 875 ton (2007)
Coffee	44990 ha, product 33 200 ton (2007)
Tea	740 ha, product 1 040 ton (2007)

Livestock (2007):

Buffalo	1123000 heads
Cattle's	1353000 heads
Pigs	2186000 heads
Goats and sheep's	268000 heads
Poultry	20453000 heads

According to national land management strategy purposed agriculture land to the year 2020 increase to 2 million ha

Part II: Forest Information

Forests are important resources for rural people in Lao PDR, and also global. The resources and services obtained from forests have played a significant role in supporting their livelihoods for many generations. Community forestry has been developed to support and enhance the linkage of people with forests and ensure that the outcomes of forest dependent communities and the forests them-selves are sustainable across a range of social, economic and environment outcomes. However, deforestation and forest degradation continue to be a serious national issue in Lao PDR due to a number of factors. With still weak land/forest related administrations to control inappropriate land/forest uses, there are concerns about environmental degradation, biodiversity loss and adverse impacts on livelihood of remote farming people caused by deforestation and forest degradation.

a. Forest area

The latest land and forest survey is for 2002 and actual images used are from 1999-2000 period. Land use has been changing very rapidly since around 2003-2004 mainly due to influx of investment in commercial crops and in many cases conversion of rich forest precedes plantation establishment. Large forest areas are also converted or cleared for hydroelectric power/dams and mining. In addition, forest degradation due to shifting cultivation, logging and others continues.

Forest historical in Lao PDR can be summary as below:

- 1940-43 French-Indochina Inventory was 70% of total forest cover of total land area in Laos
- 1980-82 Lao PDR was support by former Soviet Union was conduct survey on forest cover in Laos is 49.1 % of forest cover of total land area, using aerial photography scale 30x30 cm, scale 1:30000
- 1990-92 Lao PDR was support by Lao Swedish Forestry Programs was conduct survey of forest cover was 47.2% of total land area using satellite images scale 1:50000 and 1:250000
- 2000-2002 LSFP and JICA support to reassessment 41.5%
- 2009-2010 JICA support to Forest Strategy Implementation Programs to assessment forest cover and land use change

b. Forest distribution (nationally)

Forest and forestry in Laos pay importance role in socio-economic such 1975-2005 Forest contribution at 6% of national GDP, and also climate, water, and environmental protection (MAF, 2005).

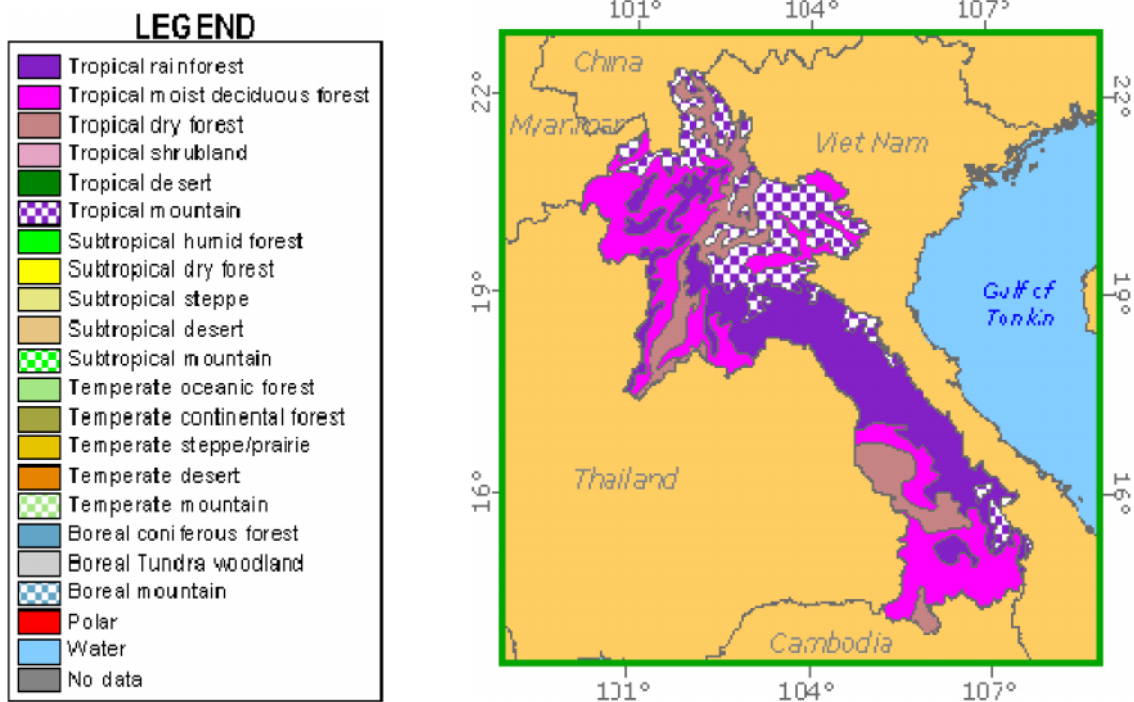
c. Ecological description

There two ecological descriptions in Laos:

(i) FAO system based on forest types divided in to four types of ecological zone as bellows:

- Tropical rainforest;
- Tropical moist deciduous forests;
- Tropical dry forest; and
- Tropical mountain

Figure 1: FAO Ecological classification year 2000



Source: FAO, 2000

(ii) WWF and IUCN classification system:

- Northern Highlands: rugged mountainous topography between 500-2000m, only six percent of the area under 20 percent slopes with half exceeding 50 percent slope. Most to dry sub-tropical climate with annual rainfall between 1,500-2000mm. Soils heavily leached and acidic with low water retention capacity and generally low fertility.
- The Annamite Range: mountainous topography between 500-2000m, with less rugged terrain than the northern highlands. Tropical monsoon climate with annual rainfall between 2,500-3000mm. Soils generally similar those in the north.

- Mekong Plain: the river plain along the Mekong and its larger tributaries. Tropical monsoon climate similar to the Sayphou Louang (Annamite Range) but varying rainfall. Generally flat upper levees with recent alluvial deposits which are acidic and shallow, the younger alluvial soils of the floodplain are fertile but are often subject to wet season inundation

Figure 2: WWF and IUCN Ecological Classification 1993



Source: Duckworth *et al.* 1999

d. History of degradation

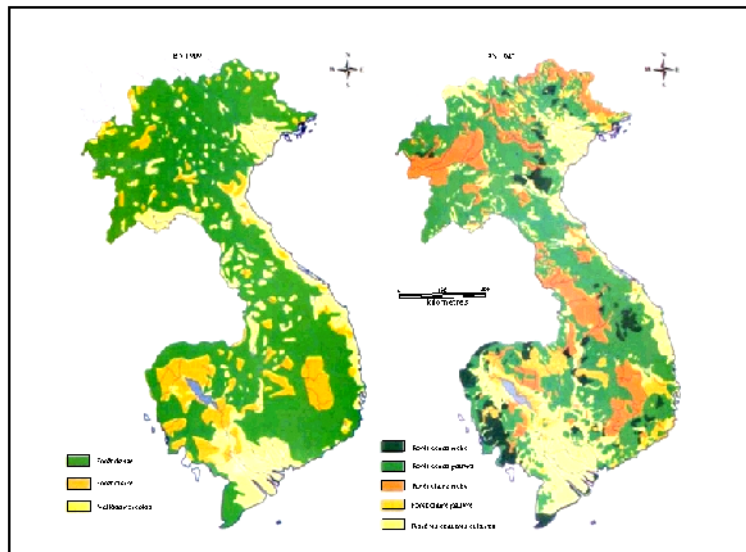
Degraded forestland are the forestland areas where forests have been heavily and continually damaged and degraded causing the loss of balance in organic matter, which may not be able to regenerate naturally or become a rich forest again. Typical species of plants and tree growing in this area are: Alang alang (*Imperata cylindrica*), May Tiou (*Cratoxylon sp.*), small bamboo, broom grass (*Thysanolaena maxima*) or other various species. (Forestry Law, 2007)

The former statistics showed that it rapidly decreased from 70% (16.6 million ha of the total land area) in early 1940s (Maurand, French-Indochina Report in 1943 as cited by DoF, 2005) to 49.1% (11.6 million ha) in 1982. In 1992 the forest cover became 47.2% or 11.2 million ha (DoF, 1992) and in 2002, it became 41.5% (9.8 million ha) of total land areas (DoF, 2005). Forest loss for 62 years, from 1940 to 2002, was identifies as 28.5% with an average of 0.44% per annum. Based on the data gathered, degraded forest was more than 6.3 million ha considered as secondary forest (FRA, 2005 and DoF, 2005)

Land degradation is a worldwide phenomenon impacting nearly every country. Although the Lao PDR is rich in natural resources, including water and forest resources, it has been confronting with land degradation caused by deforestation due to improper agricultural practice and timber extraction. In addition, the seasonal drought, which is compounded by the increasing frequency and magnitude of El-Nino, has also contributed to land degradation. During the El-Nino years, extended dry spell can last as long as 6 to 7 months, this has caused severe long term damages on soil condition and ultimately reduction of the soil capacity to sustain crop yield. Land degradation has exerted tremendous pressures on affected communities especially, in the rural remote areas.

Figure 3: Forest Cover in Indochina (Cambodia, Laos and Vietnam) 1909 and 1943

Figure 4.2 L'Indochine. La couverture forestière en 1909 et 1943.



Source : D'Espèze Thomas, 1905.

Fait par : Vo Thanh Son, 2001.

e. State of degradation and deforestation regionally + reasons

National assessment

The table below show the national forest assessment during 1982, 1992 and 2002. The current forest has been decreasing from 11.6 million ha in 1982 to 9.8 million in 2002. While, potential forest has been increasing form 8.5 million ha in 1982 to 11.1 million ha in 2002. However, permanent agriculture was also increasing from 0.7 million ha in 1982 to 1.2 million ha in 2002, according to national land management agency 2009 it may increase to 2 million ha in the year 2020 (NLMA, 2009)

Table 1: Land use and vegetation type change assessment in Lao PDR during 1982-1992-2002 (1,000 ha)

Land uses and vegetation types	1982 (ha)	1992 (ha)	2002 (ha)
Current Forest	11,636.9	11,168.0	9,824.7
Dry Dipterocarp Forest	1,235.1	1,206.4	1,317.2
Lower Dry Evergreen Forest	88.6	85.5	56.0
Upper Dry Evergreen Forest	1,105.8	1,061.0	1,387.9
Lower Mixed Deciduous Forest	893.0	864.5	881.1
Upper Mixed Deciduous Forest	7,792.2	7,405.5	5,499.5
Gallery Forest	90.7	87.5	28.2
Coniferous	138.3	132.2	89.1
Mixed Coniferous and Broadleaves	293.2	280.4	525.8
Wood Plantation	0.0	0.0	40.0
Potential Forest	8,554.1	8,949.0	11,152.2
Bamboo	1,475.0	1,531.9	539.0
Un-stocked	6,499.7	6,791.4	10,096.3
Ray (Shifting Cultivation Area)	597.4	625.7	516.9
Other Wooded Areas	1,545.4	1,444.2	286.5
Savannah/Open Woodlands	974.0	912.5	94.4
Heath, Scrub Forest	571.4	531.7	192.1
Permanent Agriculture Land	708.7	894.4	1,200.0
Rice Paddy	658.3	798.4	963.7
Agriculture Plantation	14.9	17.7	216.8
Other Agriculture Land	35.5	42.3	19.5
Other Non Forest Area	1,234.9	1,269.4	1,216.6
Barren Land, Rock	109.8	116.1	231.0

Grassland	804.4	822.8	579.3
Urban Area	82.2	84.2	135.3
Swamp	34.1	35.3	51.0
Water	204.4	211.0	220.0
Total	23,680.0	23,680.0	23,680.0

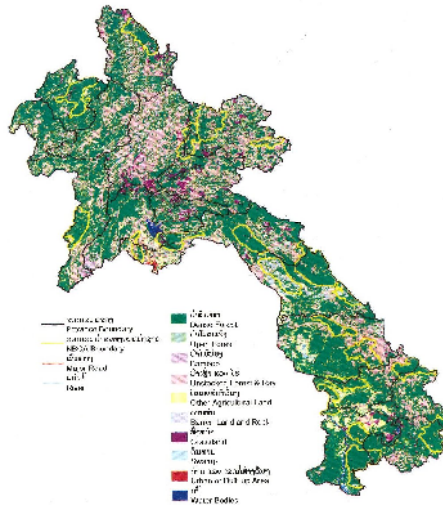
Source: Department of Forestry, July 2005

Denote:

- current forest are canopy cover more than 20%, tree height more than 5 m, area more than 0.5 ha
- potential forest are canopy cover less than 20%, tree height less than 5 m, and an area less than 0.5 ha

Figure 4: Land use and Forest Cover Map in Lao PDR 2002

ແຜນທີ່ ຄວາມຍືດຍື່ນຢ່າມັ້ມ ໃນ ລາວ ປີ 2002
Land use and Forest Cover Map in Lao PDR 2002



Source: Department of Forestry 2005

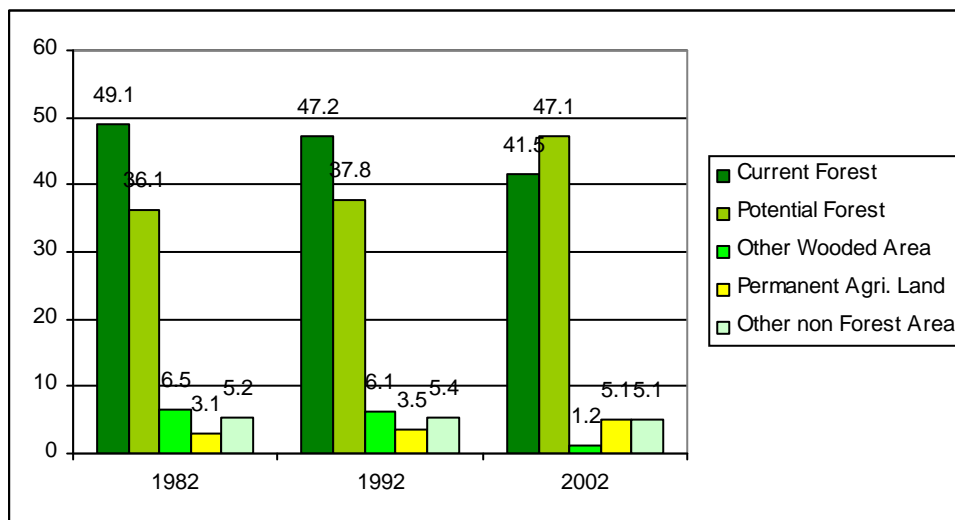
According to the third National Report to UNCCD in 2006, the land and forestland degradation were consider into national as 11.5 million

Table 2. Types of land degradation (2002)

Vulnerable land to degradation	(1,000 ha)	%
Unstocked forest areas	10,096.3	42.6
Grasslands/pasture	579.3	24.5
Barren land and rock	231.0	9.8
Agriculture plantation	216.8	9.0
Heath, stunted and scrub forest area	192.1	8.1
Savannah/open woodlands	94.4	4.0
Total	11,509.9	

Source: Lao PDR Third National Report to UNCCD March 2006

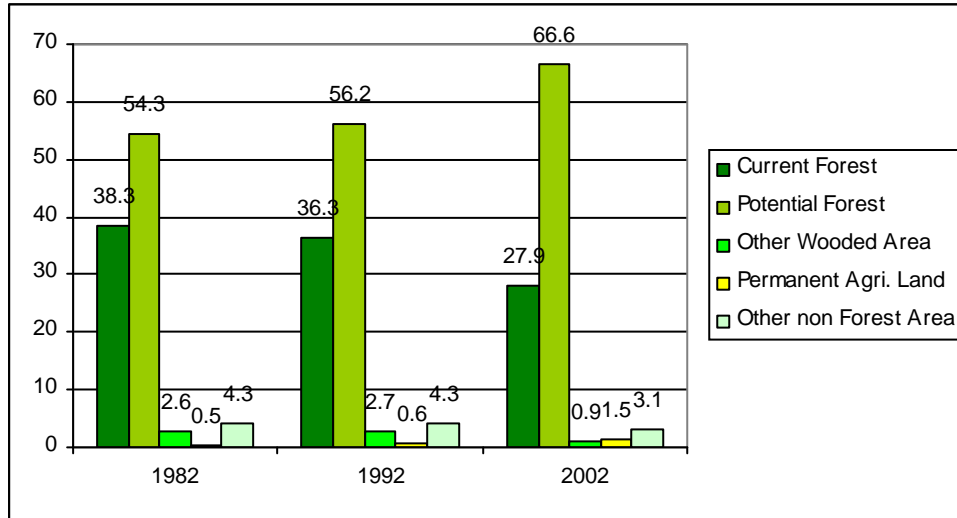
Figure 5: The changes of forests and land uses during 1982, 1992 and 2002 (%)



Source: Department of Forestry 2005

Northern region

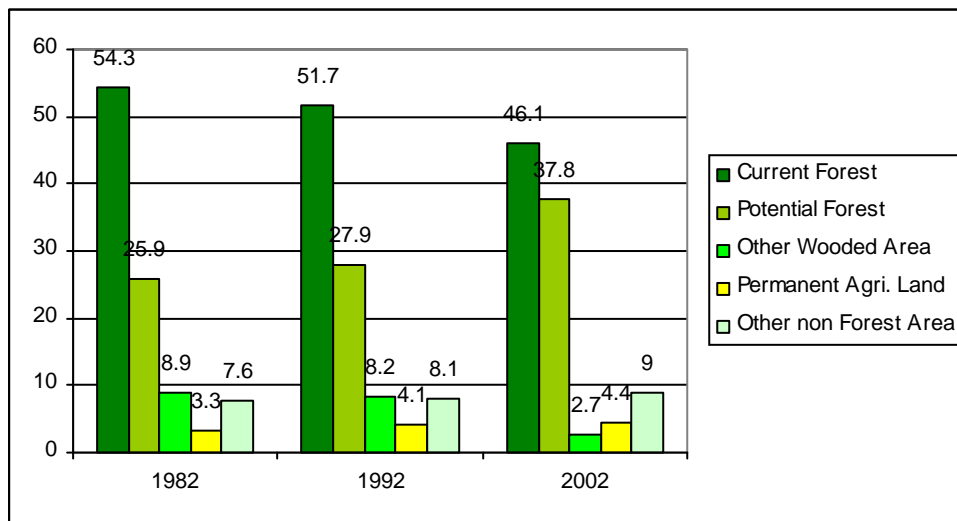
Figure 6: Forest and land use distribution in Northern region 1982, 1992 and 2002 (%)



Source: Department of Forestry 2005

Central region

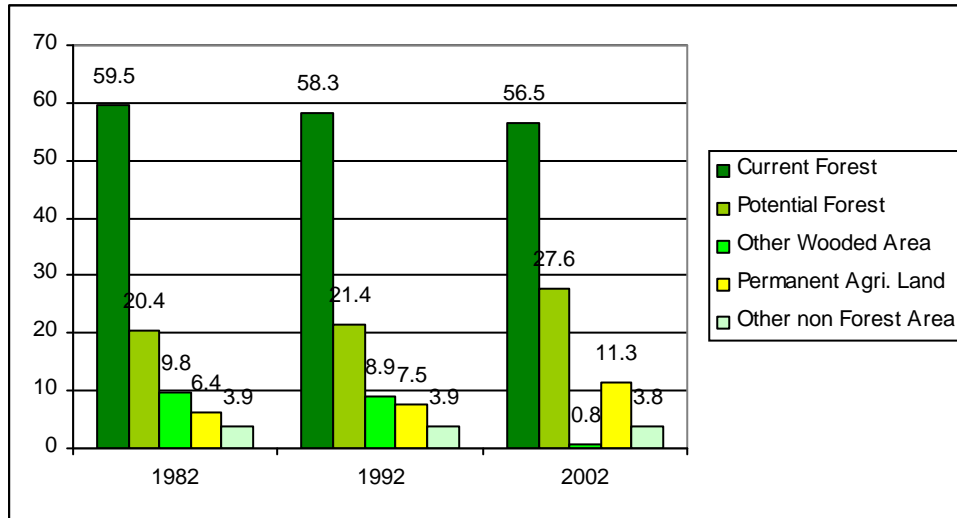
Figure 7: Forest and land use distribution in Central region 1982, 1992 and 2002 (%)



Source: Department of Forestry 2005

Southern region

Figure 8: Forest and land use distribution in Southern region 1982, 1992 and 2002 (%)



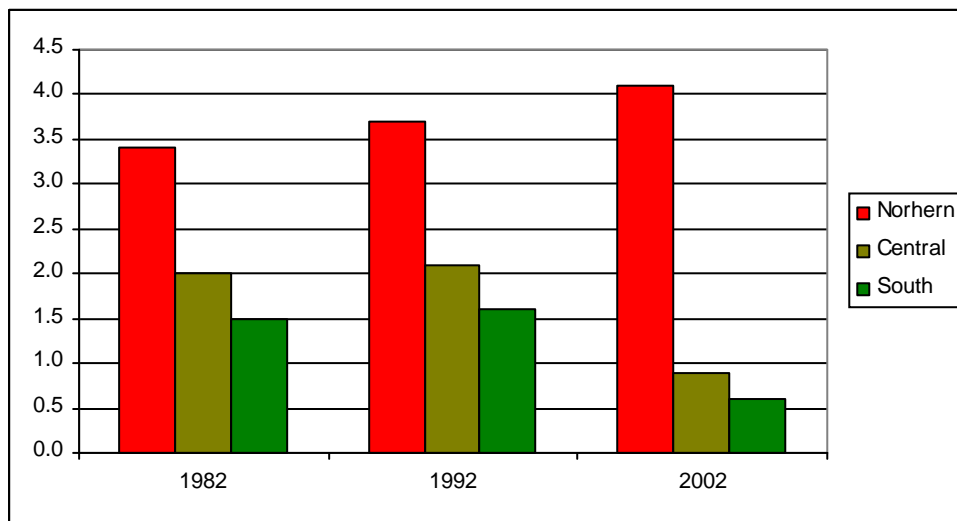
Source: Department of Forestry 2005

The main drivers of deforestation:

(i) Shifting cultivation (temporally, permanent, nonpermanent);

The figure below show slightly increased from 3.4 percent in 1982 to 4.1 percent in 2002. While in central it reduced 2.1 percent in 1982 to 0.8 percent in 2002, and similarly the southern part it decreased from 1.6 percent in 1982 to 0.6 percent in 2002 percent.

Figure 9: The percentage of shifting cultivation by regions (%)



Source: Department of Forestry 2005

(ii) Land clearing for agriculture crops/land conversion (for food, bio-energy, commercial crop);

(iii) Legal and illegal logging (timbers, fuel wood, and Non-Timber Forest Products);
Example: fuel wood total consumption per year 4.8 million m³ and charcoal 18,000 ton/year (Department of statistics, Ministry of Planning and Investment, 2008; NAFRI 2009)

(iv) large scale of infrastructures development (Urban, roads, hydro power dams); and

(v) Industry (mining);

f. Constraints for forest restoration and rehabilitation

The main constraints to the implementation of restoration and rehabilitation activities are among others:

- A lack of clarity regarding procedures for plantation establishment;
- Uncertainty over the sharing of costs and benefits associated with establishing and harvesting products from plantation;
- Limited financial resources and human capacity and the lack of well developed market.

Part III: Forest Degradation Control Mechanism to Date (history)

a. Linkage to national and provincial forest and land use policies

According to Land Law 2003, land has been classified in to 8 categories such:

- 1) Agriculture land;
- 2) Forest Land;
- 3) Wet land;
- 4) Industry land;
- 5) Transportation land;
- 6) Culture land;
- 7) National protection and security land; and
- 8) Urban land.

Table 3: National system on land uses policies and land management

National	Provincial	District	Cluster Village/Village
<i>National Land Management Agency/Department of Land Development</i>	<i>Land Management Department</i>	<i>Land Management Office</i>	<i>Economic Group (Village Land Management)</i>
Ministry of Agriculture and Forestry/Department of Forestry	Provincial Agriculture and Forestry Office /PAFO (Forestry Section)	District Agriculture and Forestry Office /DAFO (Forestry Unit)	Economic Group (Village Forest)
Ministry of Agriculture and Forestry/Department of Agriculture	Provincial Agriculture and Forestry Office/PAFO (Agriculture Section)	District Agriculture and Forestry Office /DAFO (Agriculture Unit)	Economic Group (Village Agriculture)
Water Resources and Environment Agency/Department of Environment	Water Resources and Environment Office/WREO	Water Resources and Environment Office/WREO	Economic Group (Village Water and Environment)

b. National level degradation control measures

National programs

- (i) *National Forestry Strategy to the year 2020* with 4 main targets: food production, commercial crop products, permanent job stabilization, and sustainable forest management (conservation, protection and production)

This strategy has been developed during 2000-2005. In order to tackle these issues the Government of Laos (GOL) especially Ministry of Agriculture and Forestry (MAF) and Department of Forestry (DOF) have taken many measures in line with the Forestry Strategy 2020 as follows:

- Temporary suspension of land concessions for plantations
- Amendment of the forestry law to clarify suitable forest land for plantation, procedures for forest land concessions and division of responsibilities
- Reform of government structure including establishment of department of forest inspection under MAF
- Reform of wood processing industry
- Delineation and management of the three forest categories e.g. Conservation, Protection and Production Forests with participation of and benefits to local villages
- Delineation of degraded forest land for rehabilitation with participation of local people
- Development of new participatory land use planning and land/forest allocation for better management of land and forest resources at village and village cluster level

GOL and MAF/DOF considers REDD has great potentials to enhance the measures mention above and to achieve the goal of FS 2020, which are poverty reduction and sustainable forest management (SFM) as follows:

First, compensation or payment through REDD will contribute to proper implementation of land use plans and forest zoning/management on the ground. For example, except production forest, local people have little benefits from living and around protection or conservation forests. Payment for forest conservation will encourage them to participate in SFM of these forests. Payments should reach people and organizations who have actually contributed forest conservation according to plans and zoning

Second, preparation and establishment of REDD will greatly contribute to capacity building from central to local levels including villagers in various REDD related areas form forest carbon monitoring to land use planning/implementation and forest management. It is expected capacity building and payment will also strengthen forest and land related institutions in general for better resource management.

(ii) Shifting cultivation eradication since 1990

Shifting cultivation project in Luangprabang province (Luangprabang, Xiengngeun, and Nan districts) (northern); Upland development group in Laksao, Khamkeut, Bolikhamxay province; Upland development project in Bolaven Plateau (southern); and Sustainable Forest Management (SFM)

(iii) National Land use planning and land allocation 1990

Third National Socio-economic Development Plan (1986-1990). This program was initiated 1989 in Xayyabouly and Luangprabang provinces. The purposes of this program are to allocate forest and forestland to local village community level.

According to Land Law 2003, Agriculture Law 1998 and Forestry Law 2007, the Land allocation programs are follow the regulation as bellows:

Agriculture lands:

- rice paddy, livestock maximum 1 ha/labor/family
- industry crop and annual crop maximum 3 ha/labor/family
- fruit trees garden 3 ha/labor/family
- grazing or grass land 15 ha/labor/family

Forestlands:

- Degraded forestland less than 3 ha/labor/family, with condition of three year agreement on temporary uses

(iv) National growth and poverty eradication 2004

Lao PDR has a population of approximately six million people, 80 percent of whom live in rural areas. An estimated 39 percent (1.9 million people) are living below the national poverty line (1997 data), the vast majority of whom belonging to the country's many ethnic minorities. Goal 1 seeks to reduce this number to only 24 percent by 2015. Over recent years Lao PDR has experienced periods of economic growth and made encouraging developmental gains. But like in many other parts of the world, growing inequality is exacerbating poverty. In some cases the situation of the poorest is getting worse rather than better, and disparities are becoming more acute. In its National Growth and Poverty Eradication Strategy (NGPES) the government has set itself targets that are more ambitious than the MDGs to eradicate basic poverty by 2010. Significant efforts will be needed in education, infrastructure (including roads, electricity and piped water), and support to the agriculture sector to reduce poverty and achieve the MDG targets.

(v) National Environment protection strategy 2004

The strategy was defines in to six focus programs as follows:

- The management of natural resources (e.g. land, water, forest, mineral resources and biodiversity);
- Management of environment of urban, infrastructure, industrial and handicraft, special zone, free trade area, tourist development projects and operations including national, cultural and historical sites;
- Institutional reform and capacity building for environment management and monitoring;
- Participation of the business sector on environmental protection and rehabilitation, and sustainable use of the natural resources;
- Promotion investment and establishment of the financial mechanisms for the environment; and
- Strengthening regional and international cooperation

(vi) National biodiversity and conservation 2004

The Lao PDR is rather rich in biodiversity. There are an estimated 8 – 11,000 species of flowering plants. Lao fauna comprises reported 166 species of reptiles and amphibians, 700 species of birds (another 100 are reasonably likely to occur), 90 known species of bats and over 100 species of large mammals. In the Indochinese Peninsula, despite limited surveys, 87 families of fish have been identified in comparison to 74 families in the whole of Africa and only 60 in South America. About 500 indigenous fish species are reported to live in the Mekong and its tributaries in Lao PDR. The centre of origin of the glutinous rice types is recognized to be within Lao PDR and northern Thailand

Main Objectives:

Identity important biological diversity components and improve the knowledge base

Manage biodiversity on regional basis, using natural boundaries to facilitate the integration of conservation and utilization oriented management

Plan and implement a biodiversity specific human resource management program

Increase public awareness of and encourage participation in sustainable management of biodiversity

Adjust national legislation and regulations and harmonize them MEAs

Secure the NBSAP implementation

Promote country needs driven international cooperation

c. Case studies

Case study was conducted in 22 areas all over the country. The main objective is to detect the causes behind the changes of forest cover areas including qualitative and quantitative changes.

d. Analysis of case studies

Table 4: Summary of 8 case study (ha)

District	Province		1992	2002	Remark
Viengkham	Luangprbang	Dense forest	60,400	23,900	Negative change
		Unstocked	27,900	62,400	
		Shifting cul.	900	2,900	
		Grass land	7,100	7,100	
		<u>Total</u>	<u>96,300</u>	<u>96,300</u>	
DongmakEu	Savanhnakhet	Dense forest	24,200	4,000	Negative change
		Unstocked	9,800	25,000	
Tadtalava	Salavane	Dense Mixed deciduous forest	15,000	11,000	Negative change
Syrivangveun	Champasack	Dense Mixed deciduous forest	11,000	3,500	Negative change
		Unstocked	4,000	9,300	
Ta Oy	Salavane	Dense Mixed deciduous forest	22,000	12,300	Negative change
Pakxeng	Luangprabang	Semi dense forest	9,900	29,500	Positive change
		Unstocked	85,400	51,000	
		Shifting cul.	800	14,300	
		Grass land	500	1,800	
		<u>Total</u>	<u>96,600</u>	<u>96,600</u>	
Sangthong	Vientiane Capital	Dense forest	5,100	8,200	Positive change
		Bamboo	8,100	11,200	
		Paddy	200	400	
		Shifting cul.	400	500	
		Unstocked	9,000	9,900	

		<u>Total</u>	<u>22,800</u>	<u>22,800</u>	
Paksong	Champasack	Unstocked	8,500	-	Positive change
		Semi dense forest	-	8,500	

e. International interventions for forest degradation control (World Bank, grants, etc.)

Table 5: summary project related to forest degradation control

Year	Project Title	Grant	Loan	Remark
1970-1975	Lao-Australia Forest Plantation Programs	X		
1997-1980	SIDA Mission support to Forestry in Laos	X		
1981-1985	Lao-Swedish Forestry Programs	X		Phase I
1986-1990	Lao-Swedish Forestry Programs	X		Phase II
1991-1995	Lao-Swedish Forestry Programs	X		Phase III
1996-2001	Lao-Swedish Forestry Programs	X		Phase IV
2002-2007	Lao-Swedish Upland Agriculture and Forestry Research Programs	X		With government contributed
2008-2012	Upland Land Research and Capacity Development Programs (SIDA)	X		With government contributed
1998-2003	Lao Tree Seed Project (DANIDA)	X		
1995-2001	Sustainable Use of Non-Timber Forest Products (Netherlands via IUCN-Laos office)	X		
2005-2007	NTFPs Marketing (FAO)	X		

??	Reduced Impact Logging (FAO)	X		
1995-2001	LAO-ADB Forest Plantation		X	Phase I
2007-2010	LAO-ADB Forest Plantation		X	Phase II
1995-2000	Forest Conservation and Afforestation Project (JICA)	X		Phase I
2001-2005	Forest Conservation and Afforestation Project (JICA)	X		Phase II
2006-2010	Forest Conservation and Afforestation Project (JICA)	X		Phase III
1995-2001	Forest Management and Conservation Project (World Bank and Find lands)	X	X	With government contributed
2004-2007	Sustainable Forest Management and Rural Development (World Bank and Find lands)	X	X	With government contributed
2008-2011	Sustainable Forest Management and Rural Development (World Bank and Find lands)	X		With government contributed
2001-2005	ASEAN-Korea Environmental Cooperation Project	X		Phase I
2005-2008	ASEAN-Korea Environmental Cooperation Project	X		Phase II
2008-2011	ASEAN-Korea Environmental Cooperation Project	X		Phase III
1998-2001	Asia-Pacific Forest Rehabilitation Network (FORSPA, SIDA)	X		
2005-2008	Forest Restoration Unit, Department of Biology, Chiangmai University, Thailand	X		Training and manual translated
2006-2008	Sustainable Rattan Harvesting (WWF-NAFRI)	X		Phase I
2009-2011	Sustainable Rattan Harvesting (WWF-NAFRI)	X		Phase II
2003-2007	Netherlands Development Organization (SNV)	X		Support free technical on NTFPs

??	RECOFT	X		Provided facilitator on community forestry and related field
1993-1997	Forest Cover Monitoring Project (GTZ)	X		
1980-1982	Forest Cover Assessment in Laos (Soviet Union)	X		
2009-2011	Agriculture Biodiversity (Swiss Development Cooperation)	X		
2009-2012	Forest Carbon Partnership Facility (World Bank)	X		
1996-present	UNCCD			
1995-present	UNFCCC 1995 and Kyoto Protocol 2003			Non-Annex I party

Remark: all programs/project included direct and indirect to forest degradation control

Part IV: Capacities to Address Degradation Problem

a. Research and development programs

- 1980-1985 National Nursery Centre
- 1986-1995 Silviculture research
- 1996-2001 Silviculture, Agro-forestry, Non-Timber Forest Products, and Tree Seed and Tree Improvement.
- 2001-2005 Silviculture, Agro-forestry, Non-Timber Forest Products, and Tree Seed and Tree Improvement.
- 2006-2010 Forest management, Plantation system, and Applied research units
- 2011-2015, and 2020 under development

b. Education and training programs

- Before 1970 the foresters were trained in Phrae Forestry School (Thailand); Dehradun (India); Canada, French, and Australia.
- 1970-1975 the first Agriculture and Forestry School was established (3 years programs);
- 1976-1981 Soviet Union, Hungary, Vietnam, East Germany, India, Czech Slovakia, Bungary (Diploma, BSc, MSc and Ph.D programs)
- 1982-1985 established three Forestry Diploma School (Northern, Central and Southern)
- 1986-1995 the higher diploma in forestry was started (3-year-programs)
- 1996-2005 Established National University of Laos, Faculty of Agriculture and Forestry (2004 Faculty of Forestry was separated from Faculty of Agriculture and Forestry)
- 2006-Present the first MSc course has been start (3 years programs)

c. Institutional capacity

- 1976-1986 Department of Forestry under Ministry of Industry and Handicrafts
- 1987-1989 Department of Forestry and Environment under Ministry of Industry and Handicrafts (Forest Inventory and Planning Division, Forest Conservation Division, Forest Management and Control, Forest Industry Division, Forest Silviculture Research Division, and Forestry Training Centre)
- 1990-1998 Department of Forestry and Environment under Ministry of Agriculture and Forestry (Forest Inventory and Planning Division, Forest Conservation Division, Forest Management and Control, Forest Industry Division, Forestry Training Centre and Forest Research Centre)

- 1999-present Department of Forestry (Forest Inventory and Planning Division, Forest Conservation Division, Forest Management and Control, and Forest Industry Division) under Ministry of Agriculture and Forestry
- 2008 Forestry Department reorganized (Planning and Cooperation, Forest Inventory and Planning, Forest Conservation, Forest Protection and Rehabilitation, Forest Production Divisions and Forest Development Fund)
- 1999 National Agriculture and Forestry Research Institute was established (the Research Centers included: Agriculture Research, Horticulture and Vegetables, Fishery and Living Aquatic, Forestry Research, Livestock Research, Soil Research, Policy Research, Information and ICT, Northern Agriculture and Forestry Research, Southern Agriculture and Forestry Research)
- 2001 established National Agriculture and Forestry Extension Services

d. Public awareness and participation

National arbor day: in order to raise awareness about preservation, development of forest, forestland and natural environment of multi-ethnic people, with the special inclusion of young generations, the State determines 1st June as National Arbor Day with the aim of creating abundant and sustainable use of forest resources (Forestry Law, Article 119, 2007). In addition several public communication such posters: prohibited of wildlife, quality of tree seed for future, and environment; Publications of Agriculture and Forestry Journal twice a year; Leaflets; monthly Bulletin; Seminar in different level: forest and climate change the role of forestry sector; Video; Broadcasting; Television programs; Private sectors and Participatory land use planning and forestlands allocation at village and cluster village level (Boualy Phamuang, 2009)

Figure 10: Arbor Day June 1, 2009



Planting ceremony June 1, 2009



Lao Women Union on Arbor Day June 1, 2009

Part V: Innovation Approaches to Address Forest Degradation

a. Ecosystem services (Payment for environmental services), carbon sequestration, CDM, and Reduced Emission from Deforestation and Degradation (REDD)

- The new issues on Payment for environment services (PES) has been bring in to account such between upstream and downstream, biodiversity conservation and eco-tourism, between city and remote areas, etc.
- Established Forest Carbon Partnership Facility and REDD Task Force Team in 2008 to develop strategy on climate change and REDD
- Clear Development Mechanism: completed decree on CDM and regulation 2006-2008, technical guidelines for approving CDM projects, 8 project proposals had been submitted to government such: hydropower, waste management, transportation, and afforestation and reforestation (Lao-Oji Forest Plantation Company, Birla-Lao Forest Plantation Company, Lao-Thai Hua Rubber Plantation), etc.
- The first national communication on climate change 1997-2000, and green house gas inventory at the national level in 2001 (forestry 71%, agriculture 24%, Energy 4% and environment 1%), while the second green house gas was preparation for the year 2010
- The second national communication on climate change 2008-2011 (an inventory of greenhouse gases (GHG); programs containing measures to facilitate adequate adaptation and mitigation of climate change; programs and plans that are considered relevant for the achievement of the objectives of the UNFCCC and preparation of the SNC of Lao PDR.
- Conducted National strategy on climate change 2008-2009 (in deep study impact of climate change in Lao, guidelines principles and objective of Laos address climate change, Lao's policies and measures to address climate change, and Laos position on key climate change issues and need international cooperation)

b. Landscape approaches

Based on socio-economic plan and policies landscape were followed: among national and international boundaries forest conservation zoning, forest protection zoning, forest production zoning, natural regeneration zoning, agriculture zoning, and others. This initiative study was done by collaboration by National Agriculture and Forestry Research Institute (NAFRI) and Centre of International Forestry Research (CIFOR) in northern part of Laos

c. Prospects for future and the likely countries approach

- National land management strategy 2020: 70% should be cover by forest and 30% for other land uses;
- Target to the year 2020: forest rehabilitation of 6 million ha of degraded forest by natural regeneration, and 0.5-2 million ha by plantation;
- Shifting cultivation eradication on 2010;
- Policies interventions in climate change to oriented to poverty alleviation such: sustainable economic development, food security, sustainable management of natural resources, infrastructure and capacity

d. International/regional collaboration

International:

- Lao Swedish Forestry Programs (LSFP) 1977-2001
- Lao Swedish Upland Agriculture and Forestry Research Programs 2002-2007
- Lao Swedish Uplands Research and Development (URDP) 2008-2012
- International Union Forestry Research Organization (IUFRO) 2006~current
- DANIDA Forest Seed Centre 1998-2004
- FAO (Reduce Impact Logging, NTFPs marketing, Code and Practice in Forest Plantation)
- SNV (supported to capacity building on NTFPs value chain and carbon assessment and monitoring)
- IUCN (Forest Conservation, Promotion for sustainable use of NTFPs)
- GTZ (Forest Cover monitoring, Forest Education)
- Former Soviet Union (Forest Resources assessment 1982, Human resources development)
- Hungary (Human resources development)
- CANADA (Forest Inventory and human resources development)
- CIFOR (Initiative on forest and landscape)
- FINNLAND (Technical support in forest inventory and management plan)
- ICRAF (case study on Agroforestry)
- WWF (support to sustainable harvesting of rattan and carbon assessment)
- World Bank (sustainable forest management and Forest carbon partnership facility)
- Asian Development Bank (Forest plantation)

Regional:

- ASEAN Forestry Forum 1997-present
- ASEAN-Korea Environmental Cooperation Project (AKECOP) July 2001-June 2005 (1st Phase); July 2005-June 2008 (2nd phase); and July 2008-June 2011 (3rd

- phase) support to capacity building, regional research on restoration degraded forest ecosystem
- Asia Pacific Forestry Network on Forest Rehabilitation (1998-2003)
 - Asia Pacific Forest Genetic Network (APFORGEN) (2003-present)
 - JICA 1992-present (capacity building, forest conservation afforestation and reforestation)
 - Lao Vietnam human resources development programs (1976-present)
 - Forest Research Institute of Malaysia (FRIM)
 - Forest Sciences Institute of Vietnam (FSIV)
 - Yunnan Forestry Academic
 - Asia Pacific Forestry Research Institution (APAFRI)
 - TEAKNETWORK
 - NEEM NETWORK
 - KOICA (provided some technical volunteer)
 - RECOFT (Capacity building on facilitators)
 - India (Forest Plantation)
 - Thailand: Thai International Cooperation Agency, support on capacity building BSc, MSc and Ph.D programs in their Universities
 - Vietnam: (Forest inventory and planning, forest education and capacity building)
 - Cambodia (Forest Conservation)
 - Japan (Capacity building for forestry sectors by provided training and implementing on conservation project)
 - Republic of Korea ((Capacity building for forestry sectors by provided training and implementing on conservation project)

Part VI: Recommendations

1. National land management policies are very importance role to all sectors to national socio-economic development;
2. improve management skill to managing natural resources such land, forests, water, biodiversity, and others resources;
3. the balancing between policies, socio-economics development plan and rural development, and implementing;
4. all sectors laws and regulations enforcement inspection are need;
5. human resources development;
6. funding uses efficiency (grant, loan);
7. national, regional and international cooperation;
8. the balance between economic, socio and environment on sustainable forest management and sustainable development;
9. considering national and sub-national approaches, and mechanism suitable for practical and implementing
10. both of sustainable development and sustainable forest management are need to identified prioritize

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