Lao People's Democratic Republic

Peace Independence Democracy Unity Prosperity

National Biodiversity Strategy and Action Plan 2016 - 2025

Prepared by the Department of Forest Resource Management of the

Ministry of Natural Resources and the Environment

With the technical support of the International Union for Conservation of Nature

National Biodiversity Strategy and Action Plan for Lao PDR 2016-2025

Ministry of Natural Resources and the Environment

Department of Forest Resource Management

Address: Ban Nahai Diew, Prime Minister Office, PO Box 7864

Telephone: +856 21 263799

Citation: Ministry of Natural Resources and the Environment (MoNRE), 2016. National Biodiversity Strategy and Action Plan for Lao PDR 2016-2025. Department of Forest Resource Management. Vientiane Lao PDR.

Technical Support from International Union for Conservation of Nature (IUCN), Lao PDR Country Programme, the Global Environment Facility and the United Nations Environment Programme (UNEP).

Decree

On Agreement and Endorsement of

The National Biodiversity Strategy

And Action Plan 2016-2025

The Ministry of Natural Resources and Environment hereby agrees upon and endorses the following National Biodiversity Strategy and Action Plan. This plan is part of Lao PDR's commitment as a party to the Convention on Biodiversity. The targets and actions described in this document are in alignment with the Aichi Biodiversity Targets agreed upon at the Tenth Conference of Parties in Japan in 2010. This document is the creation of a partnership between MONRE and IUCN with inputs with the multi-sector working group's created to support the NBSAP and the National report preparation, monitoring and evaluation. Consequently, the implementation of this document will be guided by the NBSAP steering committee and agrobiodiversity related sectors until 2025 through their efforts to incorporate this NBSAP into their Action Plan. This NBSAP has served as a model for the preparation of the Provincial Biodiversity Strategy and Action Plan (PBSAP) for Xieng Khouang, Attapeu, and Luang Prabang provinces and will be critical for further development of other provinces' PBSAPs and NBSAP implementation.

Signed

Foreword

The Government of Lao PDR acceded the **Convention on Biological Diversity (CBD)** also known as the **Rio Convention** in the year 1996. As a party (signatory) of the convention and in compliance with Article 6 on the General Measures for Conservation and Sustainable use the Government of Lao revises the NBSAP as requested in CBD Conference of Partie Decision X/1.

The updated, National Biodiversity Strategy and Action Plan (NBSAP) has been prepared by the Ministry of Natural Resources and Environment (MoNRE), with technical support from IUCN (International Union for Conservation of Nature) and with financial support from the Agrobiodiversity Initiative (TABI) under the Swiss Agency for Development and Cooperation (SDC), as well as from the Global Environment Facility (GEF). A large number of government offices, NGOs, and development partners have provided invaluable technical support and inputs in the formulation process of this document. The United Nations Environment Programme and its Regional Office for Asia and the Pacific (UNEP ROAP) and the CBD Secretariat also contributed to the development of this updated NBSAP.

This NBSAP comes at a time when the GoL is working hard towards its Millennium Development Goals of poverty eradication and sustainable development. To meet these Goals, the GoL has put in place a long term development plan to raise the country from the Least Developed Country (LDC) status by 2020 and to significantly alleviate poverty through human resource development, rural development and the involvement of Lao people in socio-economic development benefits.

The national development of Lao PDR; its economic growth, and the strengthening of its natural resource (including biodiversity) based industries such as agriculture, fisheries, forest enterprises, hydropower development, tourism, and mining. However, the utilization of thee resources without well planned strategies could undermine Lao PDR’s national development and future security.

The NBSAP provides broad recommendations to contribute to global, and achieve national, biodiversity targets leading up to 2025. The actions identified within the strategy are designed to be flexible enough to, with appropriate adjustments, support the continuing development of the country.

I am pleased to say that the NBSAP development was conducted in a participatory and collaborative manner and, as such, I would like to invite all concerned parties to mainstream the strategy and its action plans into their own strategies, policies, programs, and work plans.

Finally, may I use this opportunity to thank all stakeholders who have been involved in the formulation process, with special thanks also given to the GEF, UNEP, and the secretariat of the CBD for the support provided in producing this report, and thanks to the IUCN for their energy and technical support. I hope that this kind of cooperation and collaboration will be seen again in the future.

Natural Resources and Environment Minister

Table of Contents

Background and Introduction to the Development of the NBSAP 2016-2025 1

PART 1: THE CURRENT SITUATION 3

INTRODUCTION TO PART 1 3

1. BASIC FACTS, STATUS AND TRENDS OF ECOSYSTEMS AND BIODIVERSITY 4

1.1 Forest Ecosystems 4

1.2 Agricultural Ecosystems 11

1.3 Aquatic Ecosystems 13

1.4 Urban Ecosystems 14

1.5 Species Diversity 16

1.6 Direct Drivers to Biodiversity Loss 18

2. SOCIO-ECONOMIC DECISIONS THAT INFLUENCE BIODIVERSITY TRENDS 25

2.1 The degree of appreciation of the economic value of ecosystems services 25

2.2 Mixed results from Investment and Trade Strategies 25

2.3 Poverty incidence and resource management 27

2.4 Current mechanisms for allocating land use and managing land use impacts 28

3. ENABLING POLICY AND INSTITUTIONAL FRAMEWORK 29

3.1 The 7th NSEDP and 8th NSEDP – Key achievements, outstanding concerns and the GoL priorities to 2020 29

3.1.1 Gains and Gaps of the 7th NSEDP National Socio-economic Development Plan .. 29

3.1.2 The 8th NSEDP: Key targets relevant to Biodiversity 31

3.2 MONRE Vision towards 2030, Strategy 2025 and Action Plan for 2016-2020 32

3.3 Sector Policies and Strategies 34

3.4 The enabling legal framework 36

3.5 The Institutional Framework 36

3.6 Directions in Governance reforms 39

3.7 Implementing biodiversity related MEAs and Conventions 39

3.8 Civil Society as contributor to biodiversity conservation and sustainable use 42

3.9 The Private Sector as potential contributor 43

3.10 Overall national, institutional and individual capacity for BD management 44

3.11 The Financing Framework 45

4. GAINED LESSONS AND GOOD PRACTICES FROM THE FIRST NBSAP AND THE WAY FORWARD 50

4.1 Quick review of NBSAP 1 targets 50

4.2 The Way Forward 57

PART II. NATIONAL BIODIVERSITY STRATEGY: PRINCIPLES, OBJECTIVES AND TARGETS 61
5. VISION 61
6. PRINCIPLES 61
7. GOAL AND OBJECTIVES 62
8. STRATEGIES AND TARGETS 62
8.1 NBSAP-Strategy 1: Protect the Country's diverse and economically important Ecosystems including the Species and Genetic Diversity. 63
8.2 NBSAP-STRATEGY 2: Integrate the Value of Biodiversity to Socio-Economic Decision Making To Ensure Sustainable Use and Funding. 70
8.3 NBSAP-STRATEGY STRATEGY 3: STRENGTHEN THE KNOWLEDGE BASE FOR STRATEGIC DECISION MAKING 74
8.4 NBSAP-STRATEGY 4.: Inspire and Enable actions through better Communication, Education and Public awareness. 76
8.5 NBSAP-STRATEGY 5: Enable effective preparation and implementation of plans and programs 77
9. CROSS CUTTING THEMES 79
9.1 Biodiversity response to climate change and the need to adapt ecosystem to climate change 79
9.2 Biodiversity, and particularly ecosystems, as an approach to adaptation and disaster risk management 80
9.1 Mainstreaming climate change into the NBSAP 80
PART III. NATIONAL ACTION PLAN 82
10. NATIONAL ACTIONS TO IMPLEMENT THE STRATEGIES AND TARGETS 82
10.1 Type of Actions 82
10.2 Summary of Actions and their prioritization 83
11. MAINSTREAMING BIODIVERSITY TARGETS AND ACTIONS INTO RELEVANT SECTORAL AND CROSS-SECTORAL STRATEGIES AND PLANS 103
12. MAINSTREAMING AND SYNERGIES AT THE LOCAL LEVELS 105
13. CAPACITY DEVELOPMENT PLAN FOR NBSAP IMPLEMENTATION 107
13.1 Nature of knowledge and skills needed 107
13.2 Establishing roles and accountabilities 108
13.3 The nature of interventions 108
13.4 Training resources 110
14. COMMUNICATION AND OUTREACH STRATEGY FOR THE NBSAP 111
14.1 Support to the human capacity development process. 111
14.2 Communicating the practices advocated by the NBSAP. 112
14.3 Communicating the NBSAP as a program. 113
15. PLANS FOR RESOURCE MOBILIZATION FOR NBSAP IMPLEMENTATION 114

15.1 Recent trends and overall recommendations 114
15.2 Specific actions 115
16. NATIONAL COORDINATION, MONITORING AND EVALUATION 117
16.1 Factors to consider 117
16.2 National Coordination Mechanism. 118
16.3 Implementation Planning for NSBAP Targets Listed below is the process of implementation planning for each NBSAP target. 119
16.4 Monitoring and Evaluation, and Knowledge Management 120
Bibliography 123
Annex 1: NBSAP Stakeholders & Consultation Process 126
Annex 2: NBSAP Working Group Participants and Focal Points 128

Abbreviations

ABD	Agrobiodiversity
ABP	Agro-Biodiversity Project
ABS	Access and Benefit Sharing
ADB	Asian Development Bank
ASEAN- WEN	ASEAN - Wildlife Enforcement Network
ASEAN	Association of South East Asian Nations
ASL	Above Sea Level
BD	Biological Diversity
BEI	Biological and Ecological Institute
CA	Conservation Agriculture
CBD	Convention on Biological Diversity
CC	Climate Change
CFSVA	Comprehensive Food Security and Vulnerability Analysis
CGIAR	Consultative Group on International Agricultural Research
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COP	Conference of Parties
CSOs	Civil Society Organizations
CSR	Corporate Social Responsibility
DAEC	Department of Agriculture Extension and Cooperative
DAFO	District Agriculture and Forest Office
DDF	District Development Fund
DFRM	Department of Forest Resource Management
DLF	Department of Livestock and Fisheries
DoA	Department of Agriculture
DoF	Department of Forestry
DoFI	Department of Forest Inspection
DoI	Department of Irrigation
EIA	Environmental Impact Assessment
ENRM	Environment and Natural Resources Management
EPA	Environment Performance Assessment
EPF	Environment Protection Fund
ESIA	Environmental and Social Impact Assessment
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer Field School
FLEGT	Forest Law Enforcement, Governance and Trade
FRDF	Forest Rehabilitation and Development Fund
GEF	Global Environment Facility
GMO	Genetically Modified Organisms
GMS	Greater Mekong Sub-region
GoL	Government of Lao PDR
GP	Good Practice
IBAs	Important Bird Areas
ICAD	Integrated Conservation and Development
ICBF	Integrated Conservation of Biodiversity and Forests Project
IFS	Integrated Financing Strategy
INGOs	International Non-Governmental Organizations
IPM	Integrated Pest Management
IPR	Intellectual Property Rights
IRRI	International Rice Research Institute
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resources Management
KAP	Knowledge Attitude and Practice

LARReC	Living Aquatic Resource Research Centre
LCCI	Lao Chamber of Commerce and Industry
LDC	Least Developed Country
LMO	Living Modified Organism
LNMCS	Lao National Mekong Committee Secretariat
LNTA	Lao National Tourism Administration
LUPs	Land Use Plans
M&E	Monitoring and Evaluation
MAF	Ministry of Agriculture and Forestry
MDGs	Millennium Development Goals
MEA	Multilateral Environmental Agreement
MEM	Ministry of Energy and Mining
MIC	Ministry of Industrial and Commerce
MICT	Ministry of Information, Culture and Tourism
MoNRE	Ministry of Natural Resources and Environment
MoPW&T	Ministry of Public Work and Transportation
MoST	Ministry of Science and Technology
MoU	Memorandum of Understanding
MPI	Ministry of Planning and Investment
MPWT	Ministry of Public Works and Transport
MRC	Mekong River Commission
MWBP	Mekong Wetlands Biodiversity Conservation and Sustainable Use Program
NADP	National Agrobiodiversity Programme
NAFRI	National Agriculture and Forest Institute
NAPA	National Adaptation Programs of Actions
NBCA	National Biodiversity Conservation Areas
NBSAP	National Biodiversity Strategy and Action Plan
NCSA	National Capacity Self-Assessment
NERI	National Economic Research Institution
NFP	National Focal Point
NLMA	National Land Management Authority
NPAs	National Protected Areas
N-PAs	Non-Profit Organizations
NRM	Natural Resources Management
NSEDP	National Socio-Economic Development Plan
NTFPs	Non Timber Forest Products
NTWG	National Technical Working Group
NUoL	National University of Lao PDR
ODA	Overseas Development Assistance
PA	Protected Areas
PACSA	Public Administration and Civil Services Authority
PAFO	Provincial Agriculture and Forest Office
PEI	Poverty Environmental Initiative
PES	Payment for Environmental Services
PFAs	Production Forest Areas
pFLUP	Participatory Forest and Land Use Planning
PGRFA	Plant Genetic Resources of Food and Agriculture
PM	Prime Minister
PoW	Program of Work
PRF	Poverty Reduction Fund
PSFM	Participatory Sustainable Forest Management
R&D	Research and Development
RA	Responsible Agency
RBOs	River Basin Organization
REDD	Reducing Emissions from Deforestation and Forest Degradation

SDC	Swiss Agency for Development and Cooperation
SEARICE	Southeast Asia Regional Institute for Community Education
SIDA	Swedish International Development Agency
STEA	Science and Technology Agency
SUFORD	Sustainable Forest and Rural Development
SWG	Sector Working Group
TABI	The Agro Biodiversity Initiative
TNA	Training Needs Assessment
ToT	Training of Trainers
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
WB	World Bank
WFP	World Food Program
WREA	Water Resource and Environmental Agency
WWF	World Wide Fund for Nature

List of Tables

Table 1:Summary of selected 7thNSEDP targets relevant to Biodiversity. 30
Table 2: List of key policy and strategy papers 34
Table 3: List of national institutional arrangements related to CBD/NBSAP. 36
Table 4: List of MEAs and Conventions Lao PDR is a party to. 40
Table 5: National Capacity Self-Assessment. 44
Table 6: Summary of source of investments (Adopted from 7th NSEDP). 45
Table 7: Profile of internally generated Trust Funds that may contribute to biodiversity. 46
Table 8: Potential sources of funds for incorporation into existing Trust Funds. 47
Table 9: NBSAP I - Program 1: Scientific Data and Biodiversity Knowledge Development. 51
Table 10: NBSAP I - Program 2: Biodiversity Management (7 key components). 51
Table 11: NBSAP I – Programs 3: Human Resources. 55
Table 12: NBSAP I –Program 4 - Public awareness and involvement. 56
Table 13: NBSAP I – Program 5 - Institutional and legal frameworks. 56
Table 14: NBSAP I –Program 6- NBSAP implementation. 57
Table 15: NBSAP I –Program 7- International cooperation. 57
Table 16: Strategy 1 - Protect the country's diverse and economically important ecosystems. 64
Table 17: Strategy 2 - Integrate the Value of Biodiversity to Socio-Economic Decision Making To Ensure Sustainable Use and Funding. 70
Table 18: Strategy 3 - Strengthen the knowledge base for strategic decision making. 74
Table 19: Strategy 4 - Inspire and Enable actions through better Communication, Education and Public awareness. 76
Table 20: Strategy 5 - Enable Effective Preparation and Implementation of Plans and Programs. 77
Table 21: Type of Actions under the NBSAP. 82
Table 22: Classification of Actions. 83
Table 23: Strategy 1.0 – Summary of actions 84
Table 24: Strategy 2 - Summary of actions. 93
Table 25: Strategy 3.0 - Summary of actions. 96
Table 26: Strategy 4.0 - Summary of actions. 98
Table 27: Strategy 5.0 - Summary of actions. 100
Table 28: Key principles and practices to mainstream and target policies and programs. 104
Table 29: NBSAP implementation and knowledge and skills needed. 107
Table 30: Lead and Co-lead agencies for training programs supporting NBSAP strategies and targets. 109
Table 31: Indicative outline of components of the overall communication plan, showing examples of stakeholders and actions to communicate with them effectively. 112
Table 32: Actions and timing for tapping key source of funding. 115

List of Figures

Figure 1: Rapid Eye satellite imagery used to assess forest cover in 2015 (Source: 2016, MAF and Japan's Programme Grant Aid for Environment and Climate Change FPP-TA6) 5
Figure 2: Forest Management Categories designated by the Government of Lao PDR (source: WCS) 7
Figure 3: National Protected Areas of Lao PDR (Source: TABI) 8
Figure 4: Forest Loss between 2001 and 2014 within Lao PDR (source: SUFORD, 2016) 10
Figure 5: Distances between urban areas and physical surroundings. (Source: SUFORD, 2016)..... 15
Figure 6: IUCN Red List species distributions. (Source: SUFORD, 2016)..... 17
Figure 7: Concession data from EMSP project (MONRE). (Source: SUFORD, 2016)..... 19
Figure 8: MONRE Strategy 2025 and Action Plan 2016-2020..... 34
Figure 9: Five key strategies..... 63

Background and Introduction to the Development of the NBSAP 2016-2025

The Lao PDR is a signatory to the Convention on Biological Diversity (CBD). As a Party and in response to the Article 6 of the convention on General Measures for Conservation and Sustainable Use, the Government of Lao (GoL) should:

> a) Develop national strategies, plans, or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned; and
>
> (b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into relevant sectorial or cross-sectorial plans, programmes and policies.

National Biodiversity Strategies and Action Plans (NBSAPs) are the principal instruments for implementing the Convention at the national level (Article 6 above). The Government of Lao PDR has completed the National Biodiversity and Action Plan (NBSAP) for the period 2005 to 2010. The update of the first NBSAP is a response to the Conference of Parties (CoP) decision X/2, which urged Parties to review, revise and update, as appropriate, their NBSAPs in line with the Strategic Plan for Biodiversity 2016-2025. Consequently, the NBSAP II intends to help Lao to contribute to the Aichi Targets and to the sustainable development of the country. This NBSAP covers the period from 2016 to 2025. The planning period coincides with the current 10 year strategic planning period of the CBD (2011 to 2020) and with the 8th National Social Economic Development Planning System (NSEDP), of the GoL.

The process for developing the NBSAP 2016-2025 began in 2011 when the National CBD Focal Point was based within MAF. Since this time, there have been multiple changes within the government structures that manage and support the commitments of Lao PDR t the CBD, including the creation of a new Ministry – the Ministry of Natural Resources and Environment. Significant efforts have been made to develop this document in an inclusive, transparent manner incorporating the viewpoints of 8 Working Groups and over 45 Government Departments and International Organizations.

The NBSAP 2016-2025 consists of 3 parts. Part I is an assessment of the current situation; Part II is the description of the Strategy and Part III is the National Action Plan. Preparation of the updated NBSAP has followed guidance provided by the CBD Secretariat and has been supported by working groups comprised of representatives from GoL agencies, NGOs, and

businesses. These groups met at a series of local and regional conferences and workshops to identify the overall scope and initial targets of the NBSAP for 2016-2025. The IUCN and DFRM facilitated two provincial level meetings in Attapeu and Xieng Khouang provinces to ensure the factoring of local views in the preparation of 2 pilot Provincial Biodiversity Strategies and Action Plans (PBSAPs).

The streamlined draft NBSAP targets were further validated with key GoL agencies that would be expected to lead in the implementation of these targets. This is to ensure that the targets support the NSEDP (2011-2015) and the NSDEDP (2016-2020) and are implementable. This would be possible if the targets build on what is already going on or being proactively planned.

The Ministry of Agriculture and Forests SDC/TABI project along with the Ministry of Natural Resources and Environment UNEP-GEF resources provided technical and financial support. The IUCN has provided the technical support for the NBSAP, including the preparation of the draft manuscript facilitating consultative processes, and networking with regional and global organisations related to CBD.

This updated NBSAP 2016-2025 builds on the gains and lessons learned from the completed National Biodiversity Strategy to 2020 and Action Plan to 2010. It is also guided by the overall global directions set by the CBD and the NSEDP. In addition to establishing the direct interventions, it seeks to help the GoL and partners address the underlying issues affecting biodiversity loss. Such issues may require interventions beyond the forestry or agricultural sectors. The NBSAP also provides attention to prioritizing the interventions as well as to ensure that resource mobilization is planned well.

For more information regarding stakeholder consultations and the process flow of developing the NBSAP 2016-20125, please refer to Annexes 1 and 2.

PART 1: THE CURRENT SITUATION

INTRODUCTION TO PART 1

Part I of this NBSAP which discusses The Current Situation, consists of 4 sections. Section 1 discusses the importance, status and trends of biodiversity associated with the key ecosystems in the country; forest, agriculture, and aquatic ecosystems. The urban ecosystem is introduced because of the ever increasing need for urban actions on biodiversity. This section also discusses the issues on the ground and provides an indication of the type of interventions that can be done within the forestry and agriculture sector.

Section 2 discusses the macro-socioeconomic decisions that influence biodiversity trends. This is highly related to the first goal of CBD, which is to address underlying issues that drive the use and management of natural resources. Section 3 discusses how existing policies and programs can either support or constrain the conservation and sustainable use of biodiversity. It also identifies pathways to generate resources. Section 4 discusses the gains and outstanding issues from the first NBSAP as well as emerging good practices in biodiversity conservation and sustainable use.

Sources of Information for the assessment

The primary document for studying the status of biodiversity management in Lao PDR is the 4th National Report to the CBD of 2010, otherwise known as 4NR. The 4NR follows the reporting requirements of the CBD. In addition to the 4NR, rapid reviews were done in 2009 to provide an Environment Performance Assessment (EPA) to support the ADB-UNEP programme for the Greater Mekong Sub region (GMS).The MDG Assessment Report of 2008 also analyses the environmental issues in the context of the Lao PDR's MDG Targets.

A key gap in the above studies is the lack of updated baseline information on the state of resources. Many of the data were generated before 2008. Available anecdotal information generated between 2008 and 2011 is made available to the extent possible to give the reader a sense of the key trends.

1. BASIC FACTS, STATUS AND TRENDS OF ECOSYSTEMS AND BIODIVERSITY

The Lao PDR is a land-locked country in mainland Southeast Asia. It is a historically, culturally and environmentally rich country with diverse landscapes and ethnic populations. It is located at the heart of the Indo-Chinese Peninsula and is surrounded by China, Vietnam, Cambodia, Thailand and Myanmar, providing a potential for a strategic resource base and land-link in the Greater Mekong Sub-region (4th National Report, 2010).

Covering a total land area of 236,800 km^2, the country is divided into seventeen provinces and one municipal province of Vientiane Capital, and with predominant ethnic communities scattered on its 4 major geographical divisions. The diversity in ecosystems and wildlife is also matched by the diversity in people (at least 48 ethnic groups) who depend on the country's biodiversity resources in one way or the other.

Almost 80% of the country is predominantly mountainous, with cultivated floodplains found along some reaches of the Mekong River and the larger tributaries. The country has an abundance of natural resources, including and forests, which cover more than 40% of its total land surface, and mineral deposits.

Its resource endowments are varied between the different geographical regions and climatic zones. The central and southern regions are endowed with plains along the Mekong and other rivers, which contain fertile soils and lands that are irrigable. These regions receive up to 2,000 mm of rainfall, annually. In contrast, the north is generally mountainous and rugged, with leached and acidic soils and mountain valleys. The highlands generally receive between 2,000 - 3,000 mm of annual rainfall, which provides a significant amount of water for rain-fed agriculture.

1.1 Forest Ecosystems

According to a study conducted by MAF and Japan's Programme Grant Aid for Environment and Climate Change FPP-TA6, the proportion of forest cover in 2015 was 46.7%. Forests cover up to 25% of lands in the northern provinces and up to 70% of land area in the southern provinces, while land classified as non-forest cover constitute the remaining areas (13.8 million ha). Of the non-forest areas, while DOF(FIPD) has classified about 8.9 million as "potential forests", (MAF, Fourth national report to the convention on biological diversity , 2010) they are most likely climax open or deciduous forest and upland crop- bush fallows mosaics and other ecosystems, all of which themselves have biodiversity, agro-biodiversity and livelihood values based on the same. In the past many years the country's forest cover has decreased which can have negative impacts on people's lives, especially in the rural area (MAF & STEA, Biodiversity Country Report, 2003).

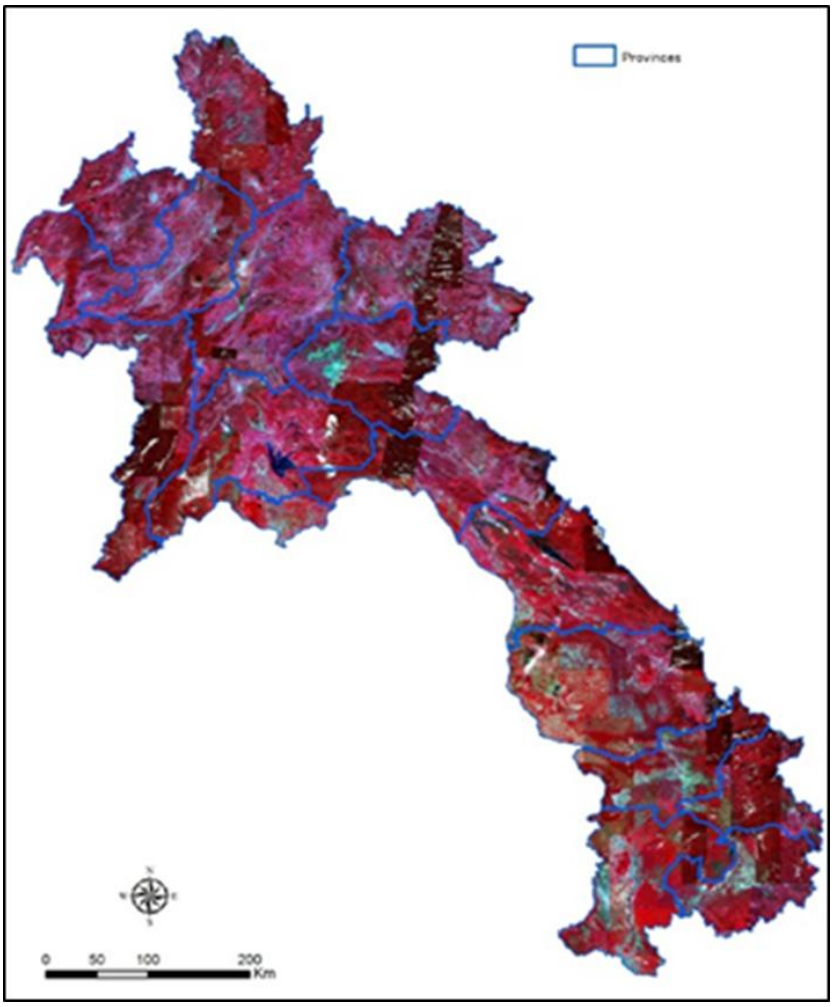


Figure 1: Rapid Eye satellite imagery used to assess forest cover in 2015 (Source: 2016, MAF and Japan's Programme Grant Aid for Environment and Climate Change FPP-TA6)

Forests provide products and environmental services, which both have strong economic values. The forest industry contributed at least 4.5% to export earnings in 2008 and employs 22,000 people (PEI 2010). Rural households depend on Non Timber Forest Products (NTFPs) for both domestic use and trade. A study conducted by IUCN (IUCN, Lao PDR Biodiversity: Economic Assessment, 2002) reports that, across all of the recorded 11.6 million ha of forest in the country, local non-timber forest product use is worth US$159.87 million per year or US$14/ha for household subsistence and US$25.65 million or US$2.2/ha for household income (an average of US$36 per household). The domestic commercial value of NTFPs is US$15.25 million or US$1.3/ha, and exports are worth US$31.80 million, or US$2.7/ha. Forests also yield firewood and charcoal worth US$3.77 million a year at the local level (average of US$40 per household, or US$0.3/ha) and US$0.82 million, or US$0.07/ha for commercial users, and timber products to a value of US$17.05.

Each Lao household is said to use at least USD$300 worth of non-timber forest products per year for both domestic use and trade. Rural households are said to depend on NTFPs for 55% of their income in 2004.

Forests protect at least 1/3 of the total area of watersheds (4.5 million ha), which in turn provides 270 million m^3 of water annually. Water resources have the potential to produce 18,000 MW of electricity through hydropower. Irrigated farm lands are estimated to earn at least USD$ 317 per annum.

Irrigated farm lands that can earn at least USD 317 per annum. The forest cover is also estimated to sequester 792 million tons of carbon worth 5.9 billion dollars (MAF & STEA, National Biodiversity Strategy to 2010 and Action Plan to 2010., 2004). The tourism industry relies on nature tourism, which earned at least USD$258 million in 2011.

Ecology. The Lao PDR's forests can be classified according to habitats of which there are 3: These include lowland forests (between 800 to 1000m ASL dominated by evergreen, semi-evergreen, and deciduous dipterocarps); montane forests (above 1000mand includes montane evergreen forests) and azonal forests (those growing under special soil conditions and water regimes such as flooded forests). Another way to classify the Lao PDR's forests would be according to floral resources. These include dry dipterocarps (.6% of area); lower dry and upper dry evergreens (6.2%); lower and upper mixed deciduous (26.9%); gallery forests (0.2%) and coniferous and mixed coniferous and broadleaf forest (2.6 %).

Of the thousands of flowering plants in the country, a good portion are hosted by forest ecosystems. It is estimated that 40% of species depend on forest ecosystems. A 2004 study on the ten most important NTFP species noted that 70% are important village sources of food (MAF & STEA, National Biodiversity Strategy to 2010 and Action Plan to 2010., 2004).

Forest. The GoL has designated three forest management categories, each with its own corresponding level of protection and use according to the Forestry Law. These are protection forests, conservation forests, and production forests. Protection and conservation forests have similar levels of protection and are both under the jurisdiction of the DFRM of MoNRE. Protection forests are defined in the 2007 forestry law as "forests classified for the function of protecting water resources, river banks, road sides, preventing soil erosion, protecting soil quality, strategic areas for national defence, protection from natural disasters, environmental protection and so on," while conservation forests are defined as "forests classified for the purposes of conserving nature, preserving plant and animal species, forest ecosystems and other valuable sites of natural, historical, cultural, tourism, environmental, educational and scientific research experiments." According to the 2015 PA Decree,

Conservation forests consist of National Protected Areas, Provincial Protected Areas and District Protected Areas at the Provincial, District and Village levels. Figure 2 is presented forest management in Lao PDR.

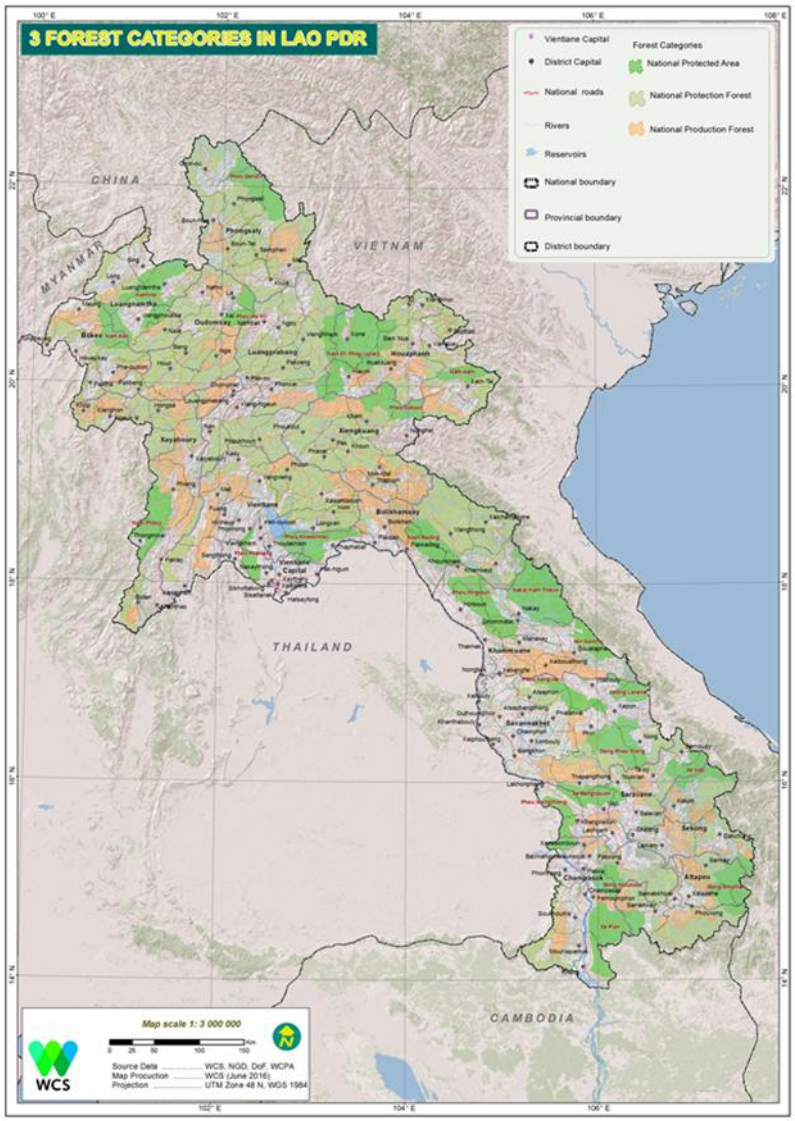


Figure 2: Forest Management Categories designated by the Government of Lao PDR (source: WCS)

Production forests are under the jurisdiction of the DoF. The Forestry Law of 2007 defines them as “natural forests and planted forests classified for the utilization purposes of areas for production and wood and forest product businesses to satisfy the requirements of national socio-economic development and people’s living.” Currently, there are 3.2 million ha of production forest which are divided into 51 Production Forest Areas. The intention is to put all PFAs under participatory Sustainable Forest Management of PSFM.

There are 24 National Protected Areas and two corridors covering 3.8 million ha, or 18% of total area of the country, as of 2004 (see figure 3). In addition, local authorities have established 57 Provincial Conservation forests; 23 provincial protection forests; 144 District

Conservation Forests and 52 District Protection Forests which sum up to 1.4 million ha. Overall, there are 5.34 million ha of conservation and protection forests, representing 22.56 % of the total land area of the country. However, in 2014 the National Assembly requested the GoL to review and recdelineate these '3 forest categories' due to to the fact that, as mapped, these '3 forest categories' overlap and include significant large areas of agriculture and other land uses, and villages.

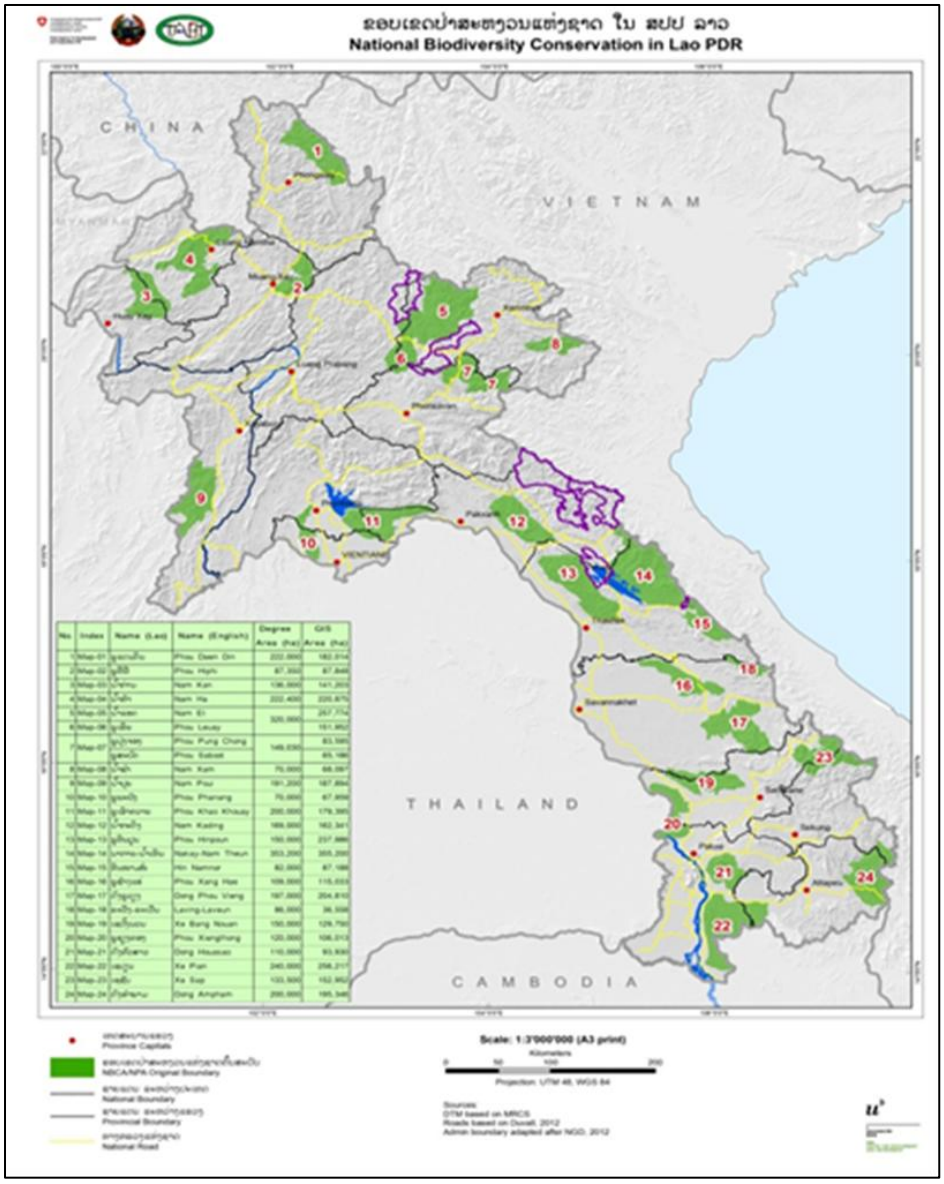


Figure 3: National Protected Areas of Lao PDR (Source: TABI)

The country comprises 27 Important Bird Areas (IBAs) distributed over the country which in the total area of 23,850 km2. Of the 27 IBAs, eight are fully outside the protected area system.

Trends. Actual wood harvested generally exceeds annual allowable harvests and approved quotas. A significant portion of harvests is due to clearing operations from infrastructure works (82% of harvests); additionally, illegal logging has greatly attributed to this trend. Harvests from production forests only constitute 8.2% of total harvest (FLEGT). Import records by importing countries exceed what is legally recorded as harvests (FLEGT, 2010).

Lack of on the ground delineation of forest types has posed problems in establishing the legality of origin of harvested timber and consequently the enforcement of forest laws. Large tracks of forest remain unclassified. Lack of clarity in definition of degraded areas and local discretionary powers for granting harvesting rights have led to the conversion of natural forests to forest plantations (FLEGT, 2010).

In recent years, forest area to commercial crops or plantation, the Government of Lao PDR introduced a number of policy instruments and incentives to boost forest cover by promoting the development of forest plantations throughout the country. For example, one of the main forest policies is to restore forest cover to 70% by the year 2020 (MAF, Forest strategy to the year 2020 of the Lao PDR, 2005). As a result, the area of plantations especially rubber plantations increased significantly from just less than 1,000 ha in 1990 to over 200,000 ha in 2007.

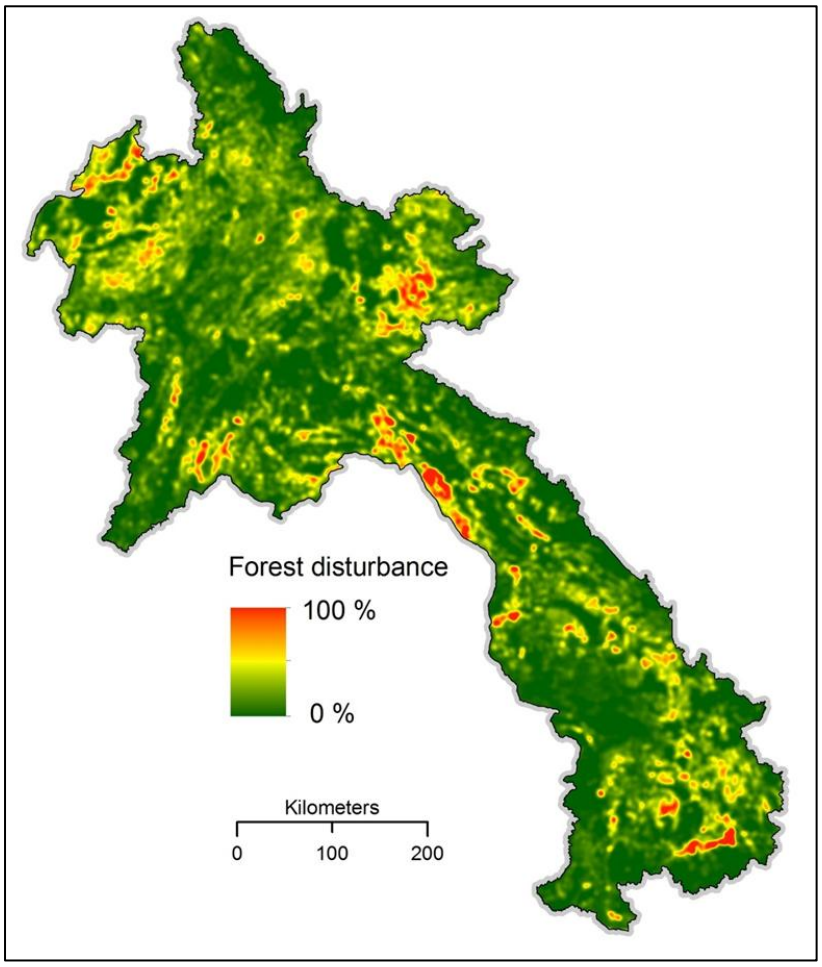


Figure 4: Forest Loss between 2001 and 2014 within Lao PDR (source: SUFORD, 2016)

Shifting cultivation has been gradually declining in certain parts of the country, largely due to Government policies designed to promote more stable agricultural practices and armers to shift to more intensive upland agriculture practices which are often inappropriate to the fragile ecology of the upland areas (ie, a mosaic of upland agriculture and bush fallows is more watershed and environmentally friendly c.f. intensive upland agriculture).

The governance of protected areas is hampered by the fact that most are not yet delineated on the ground and only 6 have management plans. Thus, there is an absence of clear benchmarks and standards upon which systematic actions can be based. The key threats to Protected Areas (PAs) are shifting cultivation, overharvesting of NTFPs, and wildlife trafficking. Overharvesting and trading of wildlife from forests are made largely by rural populations living within and nearby PAsTo address the above concerns, the GoL is reforming the management of production forests by establishing science based Participatory Sustainable Forest Management (PSFM) systems in all of the 54 Production Forest Areas (PFAs) with a total area of 3.1 million ha. A new policy is being developed that would

strengthen the concept of village forestry, particularly in areas outside of PFAs. Appropriate agroforestry models are also being developed for upland communities.

To address the above concerns, the GoL is reforming the management of production forests by establishing science based Participatory Sustainable Forest Management (PSFM) systems in all of the 54 Production Forest Areas (PFAs) with a total area of 3.1 million ha. A new department, the Department of Forest Inspection (DoFI) provided focused attention to law enforcement. A new policy is being developed that would strengthen the concept of village forestry, particularly in areas outside of PFAs. Appropriate agroforestry models are also being developed for upland communities.

The Department of Forest Inspection (DoFI), of the Ministry of Agriculture and Forestry (MAF), was established in 2008. It has lead and coordinate, and cooperate and support, responsibilities associated with investigation and enforcement activities under the *Forestry Law 2007 No06/NA (*Article 110-116), and the *Wildlife and Aquatic Law 2007 No07/NA (*Article 58-63), of the GoL. *It operates under Terms of Reference* No-:0141/MAF (18 Nov 2012) and *No. 1894/MAF, 10/8/2012.*

Moreover, efforts have been also made by the GoL and development partners to increase capacity of agencies and people to address sustainable development, for the purposes of sustained economic growth, local livelihood retention, and nature conservation. Key agencies related to sustainable use of natural resources include Departments under the Ministry of Natural Resources and Environment (MoNRE), Ministry of Agriculture and Forestry (MAF), and the National University of Lao PDR (NUoL), amongst others.

1.2 Agricultural Ecosystems

It is estimated that 75-80% of population still lives in rural areas, and depend largely on harvesting wild plant and animal products for their day-to-day subsistence and income. Natural resources – forestry, agriculture land, water, and minerals – comprises more than half of Lao PDR's total wealth. Together with forestry, agriculture contributed to 4% of economic growth between 2006 and 2010. The agriculture sector employed 75-80% per cent of the Lao workforce in 2011 (UNCTAD, 2013).

Moreover, rice alone was found to be contributing 79 per cent to the total daily energy needs, greater than the international recommendation of 55 to 75 per cent contribution from all carbohydrates (Lao Statistics Bureau, Food Security in Lao PDR: A Trend Analysis, 2012). Lao farmers plant many rice varieties at any one time and tend to prefer native breeds of small livestock. Aside from rice and corn, other major important crops grown in the country include root crops such as cassava, sweet potato, taro, Chinese yam, soybeans,

groundnuts, bushy peas, sugarcane, cotton, coffee, tea, cardamom, tobacco, sesame, Job's tears, and rubber (MAF & STEA, 2004; Committee on Planning & Investments, 2009).

Ecology. There are three major types of farming systems (lowland, upland, and plateau) and these are further classified into five production systems: Lowland rain-fed farming system; lowland irrigated farming systems; upland rain-fed farming systems; highland farming systems; and plateau farming systems. These production systems have two common elements; (1) the cultivation of rice (glutinous or non-glutinous) as the staple food, and (2), the diversified livelihood strategy. Under these 3 broad categories, up to 16 further sub categories of farming systems can be identified (MAF & STEA, National Biodiversity Strategy to 2010 and Action Plan to 2010., 2004)

Lao PDR is one of the world's centres for biodiversity of rice genetic materials. . NAFRI has collected more than 3,000 samples of cultivated rice representing unknown number of traditional varieties and 237 samples of wild rice genetic materials representing five species.

A recent study of paddy field area of three villages in Xieng Khouang Province recorded 95 wild species used by farmers from a 30 ha paddy wetland area and confirmed the rich diversity of indigenous knowledge associated with their use (Pedersen et al., 2014).

Trends. The value of all agricultural exports (including a small proportion of plantation products) is increasing yearly. However, the trade-offs are the increased use of agricultural chemicals (synthetic fertilizers, pesticides, and others). Inappropriate and unsafe use of pesticides is a major challenge, particularly in agricultural landscapes such as larger scale cash crop cultivation such as maize and bananas. In lowland farming systems, native rice varieties are used less than in the uplands. Also, shifting agriculture is giving way to intensive upland agriculture, using fewer species.

The area for food production is reported to be gradually declining as more farmers, both big and small, want to invest in plantations. The Comprehensive Food Security and Vulnerability Analysis (WFP, 2007) found that two thirds of the rural population are food insecure, or live on the edge of the food security boundary, and could become food insecure should a shock occur during the year.

The GoL is addressing the above issues by pursuing a balanced policy of promoting commercial agriculture while ensuring the protection and health of ecosystems. Some specific measures include the promotion of agroforestry, organic agriculture; IPM/FFS/CA and the launching of a "clean agriculture "program and R&D work on agro-biodiversity.

1.3 Aquatic Ecosystems

The 4th National Report reported on aquatic ecosystems as involving water resources as well as inland waters and aquatic habitats (MAF, Fourth national report to the convention on biological diversity , 2010). Approximately 35% of all water in the Mekong River originates from watersheds within the Lao PDR. The total surface water standing is at 55,000 m^3 per capita annually, the highest among all Asian countries. The GoL expects to tap a substantial portion of this water for hydropower production as a major source of revenue.

The same IUCN (IUCN, Lao PDR Biodiversity: Economic Assessment, 2002) discussed above indicates that the Lao PDR's 945,000ha of rivers, water bodies and other natural and constructed wetlands are found to provide fish and other aquatic animals worth an estimated US$101.01 million per year for household subsistence, income and small-scale trade, an average of US$106/ha. Inland fish and other aquatic animals make up 48% of the animal protein consumed by the people. Approximately 70% of all farming households fish on a seasonal basis. In Southern Lao PDR, for instance, over 80% of households participate in fisheries, and this accounts for 20% of their income.

Ecology. The water resources support large fish populations, as well as yielding a wide range of other aquatic animals that are harvested for household consumption and trade. Their habitats include stream banks, flood plains, rapids, rocky shores and deep pools. Other ecological niches are revealed during cyclical changes in water level, and include sandbars, pebble flats, reef beds and rocky outcrops, which are also important habitats for migrating birds.

Fish diversity in the Mekong River is estimated to be roughly 3 times that of the Amazon River. With the exception of a small number of introduced fish used for aquaculture, almost all of the fish species caught in the Lao PDR are indigenous species. About 500 indigenous fish species are reported for the Mekong River and its tributaries in the Lao PDR and, of these, 9 species are threatened, and 25 species are suitable for aquaculture (MAF & STEA, National Biodiversity Strategy to 2010 and Action Plan to 2010, 2004).

Trends. The major threats to aquatic ecosystems include the construction of hydropower dams, and the wide use of agro-chemicals. Hydropower dams involve major changes in hydrology that affect the behaviour of fish populations. In addition, the aquatic systems are already affected with water pollution (domestic, industrial, aqua cultural and agricultural sectors), over harvesting and introduction of exotic species for aquaculture.

Pronounced soil erosion is noted in upstream provinces due to embankments in Thailand and natural flooding (IUCN, 2006). Ammonium concentrations have increased significantly

between 2000 and 2008. Water pollution from industrial sources has been identified in Phnom Penh and Vietnam. Elevated levels of metals are now evident in the industrial districts in Phonm Penh and Vientiane (MRC, 2010).

The GoL is trying to address these issues by adopting the integrated water resources management (IWRM) approach, among others. Moreover, the GoL has recently passed the Fisheries and Aquaculture Law and is also promoting the role of community-based resource management that build on traditional regulatory systems.

1.4 Urban Ecosystems

Urban Ecosystems refers to the interaction between the urban population and its immediate natural and physical environment. Figure 5 below indicates the distances between urban areas and physical surroundings. Urban ecosystems are particularly important in major cities (e.g. Vientiane, Luang Prabang, Thakek, Savanakhet, and Pakse), medium sized provincial capitals (e.g. Luang Namtha and Paxxan) and small district capitals (e.g. Vang Vieng).A lot of progress has been made since the NBSAP I. The Urban Planning Institute took the lead in urban planning, mainly in provincial and district capitals. In Vientiane capital, a Japanese firm was hired to conduct studies and eventually designed a master plan.

Ecology. Urban areas contain landscapes and various forms of sub-ecosystems that host biodiversity. These include remnant forests and woodlands, springs, rivers, marshlands and peri-urban agricultural areas. Ecological niches of varying sizes in urban areas perform important functions. A recent study which investigated the economic value of the That Luang Marsh in Vientiane Capital indicated that it provides environmental services such as natural drainage and sanitation worth USD 5 million.

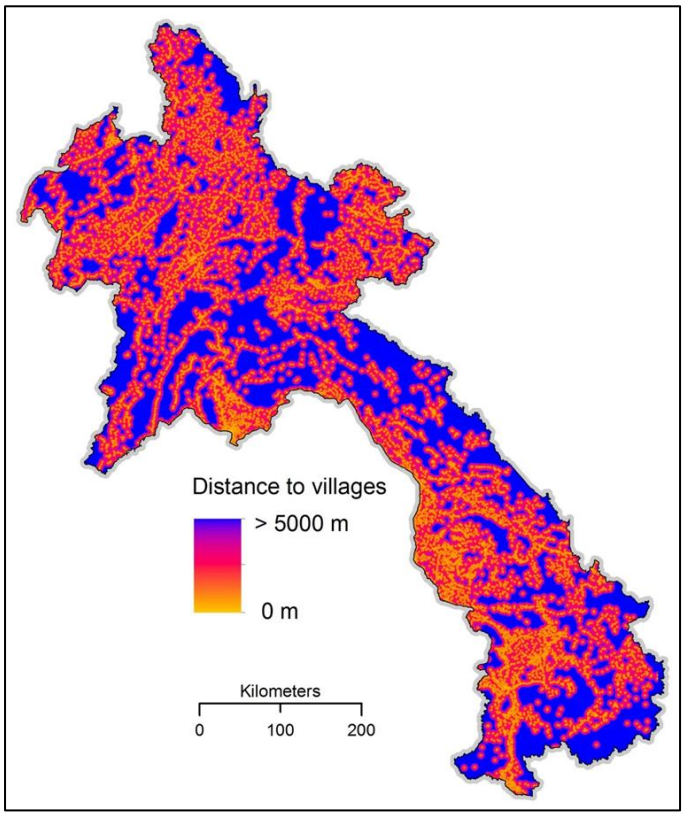


Figure 5: Distances between urban areas and physical surroundings. (Source: SUFORD, 2016)

Urban centres also represent opportunities to set up ex-situ conservation sites for important flora and fauna species (e.g. botanical gardens). The way people live in urban areas also directly influences the degree of utilization of natural resources in a country. Examples of urban parks include Chao Anouvong Park, Chao Fa Ngum Park, Chao Saysetha Park, Natural Cultural Park, Patouxay Park, and That Luang Park in Vientiane Capital.

Urban areas are governed by local authorities in collaboration with technical agencies. Current GoL policies require urban areas to prepare their Urban Master Plans to guide the long term physical development of cities. Part of the planning protocols provide 3 categories of land use that can enhance biodiversity, these are the agricultural zones, conservation zones and forest and nature zones.

Trends. Rivers, waterways and marshlands in urban areas are increasingly being subjected to pollution from solid waste and waste water. Another source of threat is the reclamation of marshlands. Waste disposal is a practical concern for many urban areas because improper disposal means leads to the pollution of waterways.

Country Analysis Paper (MPWT & MoNRE, 2013) stressed that the waste generation has been increased significantly in urban centres of Lao PDR, and only about 45-50 per cent has been collected. The same report also highlighted that the urban waste production in Lao

PDR is around 0.75 per capita per day, and only 5 major cities use landfills for solid waste disposal (Vientiane, Thakhek, Savannakhet, and Pakse).

The NSEDP for 2011-2015 provides guidance on the direction of urban development. One step would be to integrate environmental planning into the physical development and infrastructure works. Disaster risk management and climate change adaptation will also benefit from the integration of environmental concerns.

Many citizen movements for environmental protection have the most potential in urban areas. Examples of this are education programs for the youth, which can help ensure that future leaders learn early about the important values of environmental management.

1.5 Species Diversity

The Lao PDR is one of the most biodiversity rich counties in Southeast Asia, with on-going discovery of new species. The great diversity of wildlife exists thanks to the Lao PDR's abundance of forest and water resources, which cover the entire length of the country. The forests and watersheds are important habitats for all species of wildlife and aquatic animals. These habitats are home to many rare and endangered species, some of which are extinct in some parts of the world but are still found in the Lao PDR, such as: Asian elephant (Elephas maximus), tiger (Panthera tigris), clouded leopard (Pardofelis nebulosa), leopard (Panthera pardus), gaur (Bos gaurus), saola (Pseudoryx nghetinhensis), gibbon (Hylobates spp., Nomascus spp.), Siamese crocodile (Crocodylus siamensis), Irrawaddy dolphin (Orcaella brevirostris), and white winged duck (Cairina scutulata).

The Lao PDR has an estimated 8,000-11,000 species of flowering and over 10,000 samples of 3,200 species have been collected so far (MAF & STEA, Biodiversity Country Report, 2003). These plant species have a range of utilities for people, and include NTFPs and medicinal plants, as well as economically important agricultural species, breeds and varieties.

Among the fauna, there are between 150-200 species of reptiles and amphibians, 700 species of birds, 90 species of bats, over 100 species of large animals and 500 species of fish which have been described for the Lao PDR (WREA, 2008). More is known among large mammals and birds and new species are still being discovered. Reptiles, insects, and rodents are poorly documented.

Some 319 species are considered to be of global conservation significance. For instance, 67% of large animals; and 53% of bats are globally significant.

The diversity of larger fungi is unknown in Lao PDR in spite of their ecological, nutritional & economic importance. However, a conservative estimate would be somewhere between 5,000-10,000 species (a check list is still to be made).

Trends. The Lao PDR is considered a sanctuary to approximately 1.6% of globally threatened species listed in the 2004 IUCN RED list (mammals, birds, reptiles, amphibians and fish). This is a higher figure compared to 1996 when the country's contribution was only 0.54% of the 1994 RED list. It is noted however that the 1994 RED list did not yet include amphibians and birds and therefore had a narrower base. It does not necessarily indicate the loss of biodiversity but more on the enlarged scope of assessment done for the RED list. However, this figure can provide insights on the uncertainties ahead in terms of conservation efforts. Figure 6 below indicates IUCN Red List Species distribution throughout Lao PDR.

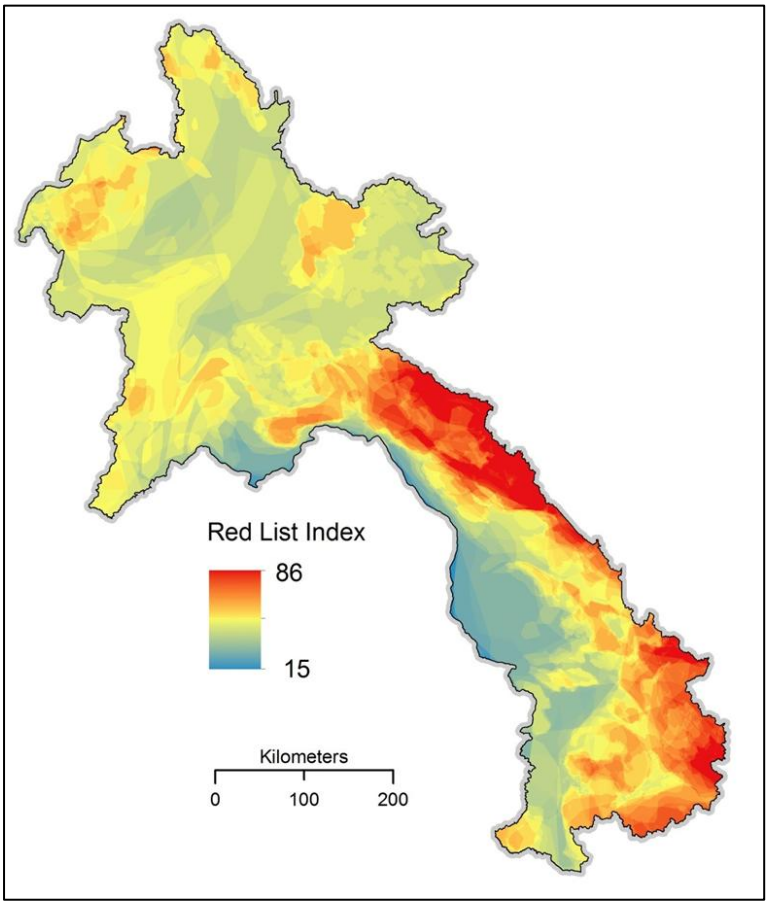


Figure 6: IUCN Red List species distributions. (Source: SUFORD, 2016)

The GoL publishes its own Red list (unrelated to IUCN's) which designates species of concern that receive special protection under law and are divided into three levels of protection, depending on concern. The Lao Red list was last updated in 2009 with the

category for the highest level of protection including 44 mammal species, 8 reptile species, 34 bird species, 7 fish species and 1 amphibian species. Examples of species on this list for the highest level of protection include the Irrawaddy dolphin (*Orcaella brevirostris*), saola (*Pseudoryx nghetinhensis)*, gibbon (*Hylobates spp.* and Nomascus spp.), great hornbill (*Buceros bicornis),* Siamese crocodile (*Crocodylus siamensis)*, Mekong stingray (*Dasyatis laosensis)*, giant catfish (*Pangasianodon gigas)*, and the Lao salamander (*Paramesotriton laoensis).*

A partial assessment in 2009 indicated that, of a total of 2,701 species studied, 157 are endemic, while 115 are threatened (ACB, 2009). A WCS survey indicated that 56 animal species are expected to fall below the minimum viable population of 500 individuals within the next 10 years unless major interventions are made (MAF and STEA 2004).

Other visible trends on species diversity as reflected in the NBSAP 2016-2025 preparatory discussions related to ecosystems included the view natural forests are in gradual decline, with an increase in industrial crop plantations of a few species in the uplands. In the lowland areas there is a declining use of indigenous rice varieties. Loss of habitat, poaching and illegal wildlife trade constitute the major threats for all species in LaoPDR.

In addition to an ecosystem assessment, further assessments should be made for threatened and endangered species in the Lao PDR, using data from the IUCN Red List and other sources. In addition, if relevant data is available, an assessment should be made of the genetic diversity and changes.

1.6 Direct Drivers to Biodiversity Loss

Habitat loss and degradation:

Habitat loss and degradation are the primary threats to the survival of wildlife in the Lao PDR, and are mostly caused by the expansion of agricultural land, forest product extraction, infrastructure expansion, and fires as indicated with the distribution of concessions in Figure 7 below.

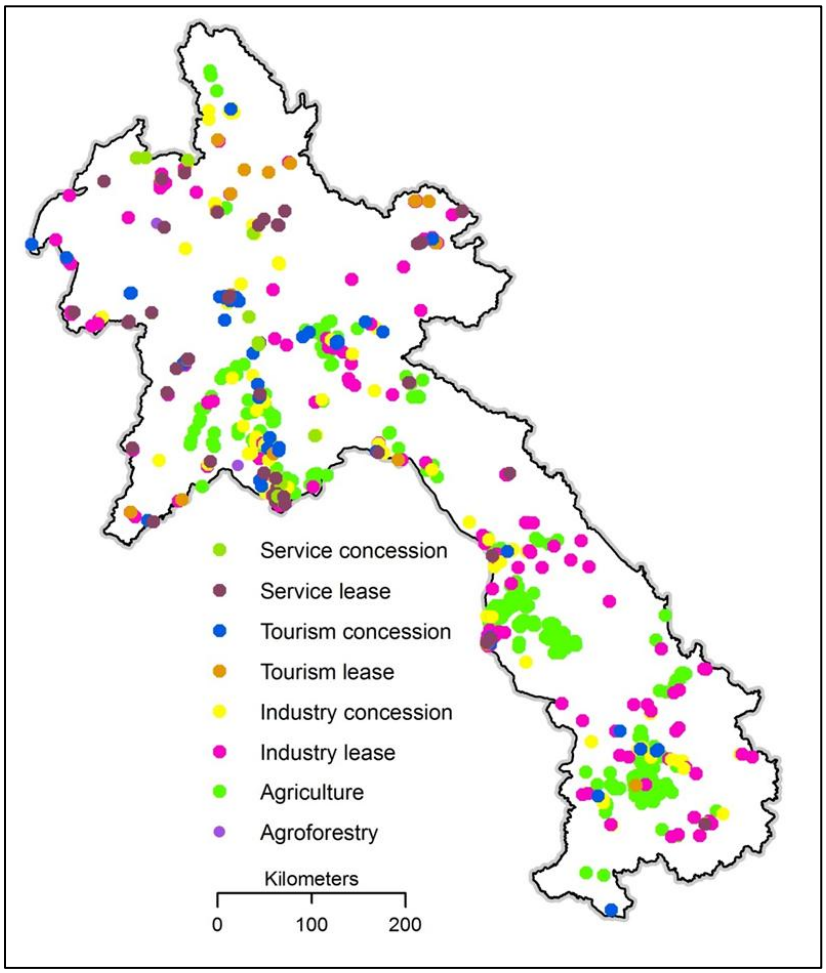


Figure 7: Concession data from EMSP project (MONRE). (Source: SUFORD, 2016)

Forest Product extraction:

The Lao PDR is rich in forests. They are a vital economic resource and provide an essential contribution to the consumption and income of the rural poor, as well as conserving biodiversity, soil, and water values. The rural population, who make up about 80 per cent of the Lao population, relies heavily on the forest for food, fuel, fiber, and shelter. Despite the importance of the resource, deforestation and forest degradation are accelerating at an alarming rate. Timber harvesting, fuel wood gathering, charcoal making, and NTFP (e.g. rattan, bamboo, resin, and other products) collection result to in widespread deforestation and forest degradation. With the development of new international financing mechanisms to address the benefits that forests provide, reducing emissions from deforestation and degradation has been identified as the most cost effective way to mitigate climate change. Therefore, avoiding deforestation has become a priority of for the Lao PDR (MoNRE, 2012).

Agriculture expansion:

As demands on agricultural products increase more and more, land is brought under cultivation for which forests are cleared and grass-lands ploughed. Agro-chemicals are increasingly used and during the process of clearing the land, wood is simply burned.

Between 2002 and 2009, the rate of forest land conversion attributed to agricultural expansion increased, for both large concession areas and small investments. Recently, the rapid emergence of concession-based commercial contract farming has been identified as one of the key drivers to deforestation. The main commodities of interest in the Lao PDR include maize, coffee, soybeans and cassava (MoNRE, 2012). A study of Moore et al. (2011) found that the transition to commercial agriculture, such as maize and Job's tears (Coix lacryma-jobi) has had noticeable effect on land-use, with an increase in monoculture. The same study also found that cash crops, in particular maize, are more demanding on the soil's nutrients and cause greater soil erosion than upland rice.

In recent years, the GoL has introduced a number of policy instruments and incentives to boost forest cover by promoting the development of forest plantations throughout the country. For example, one of the main forest policies is to restore forest cover to 70% by the year 2020 (MAF, 2005). As a result, the area of plantations, especially rubber plantations, has increased significantly from just less than 1,000 ha in 1990 to over 200,000 ha in 2007. However, tree plantations are likely to be a small part (perhaps 500,000 ha) of the overall forest restoration plan of 7 million ha. Most of these plantations are expected to provide social and environmental benefits to local communities and their economies (Phimmavong, et al., 2009). It is believed that the establishment of plantations on degraded forest and agricultural land generates a negative impact, not only for local communities and their livelihoods, but also for wildlife species.

Infrastructure expansion:

Hydropower and mining: are very dynamic sectors in the Lao PDR and have the potential to make a great contribution to economic development and poverty alleviation. The Lao power sector is under the process of development. In particular, the hydropower sector has the potential to play a key role in achieving the social and economic development objectives of the Government of the Lao People's Democratic Republic (Lao PDR) by expanding the availability of low cost, reliable electricity within the country and earning revenue from export sales to the region (MEM, 2015). The mining sector is also one of the biggest contributors to national revenue in the Lao PDR. It is one of the four priority sectors (the other being energy, agriculture and tourism) for investment and industrialization. Foreign Direct

Investment (FDI) from 1989-2014 in the mining sector accounted for 24% (MPI, 2015) of overall investment in the industry.

Both hydropower and mining have serious environmental implications, not only at the local level. One report on an environmental perspective on hydropower and mining development in the Lao PDR (Stenhouse & Bojoe, 2010) expressed that the significance and scope of these effects is related to the size of the project and its location. The same report states that there are several mining concessions and hydropower projects which overlap with NPAs which are areas of high biodiversity.

Based on the latest assessment, in line with the government policy to respond to regional demand, thirty-one potential sites for hydropower dams have been identified in forest areas, amounting to 140,635 ha (MAF, 2005). The hydropower sites are one of the drivers of deforestation as they represent areas designated for development and are seen as financially attractive logging sites as no regeneration of forests is required after logging, and no other area to replant and offset what is lost is required (MoNRE, 2012).

Transport corridors: given its strategic location, the Lao PDR aims to become a land link and centre of logistics for the GMS. In recent decades, the development of road networks and transport within the country has given rise to fairly rapid north-south and east-west economic corridors with international linkages. Given its strategic location, the Lao PDR aims to become a land link and centre of logistics for the GMS. (MoNRE, 2012).

Road construction provides convenient transport facilities infrastructure to Lao people. However, it can also be a threat for wildlife habitat and biodiversity. Apart from the direct impacts of their construction; land clearing, and damage to freshwater ecosystems and waterways by erosion, roads also 'open up' previously inaccessible forest and natural areas which allows exploitative activities to take place (wildlife hunting, logging and encroachment).

Tourism: according to the Lao PDR Tourism Strategy 2006-2020, from 1990 to 2000 - the Visit Lao PDR Year had begun – the number of tourists significantly increased during this period, from 14.400 tourists in 1990, to 737,208 tourists in 2000. The tourism industry's contribution to the national and local economies is also growing. Based on its geographical location, natural abundance, historical and cultural aspects, the Lao PDR has a special character that attracts more tourists to rural remote areas, especially to ethnic villages and natural sites; protected forests, caves and, rivers. The negative environmental impacts of tourism development relate to the physical development of facilities (in terms of construction

and infrastructure development, and as well as deforestation and intensified or unsustainable land use).

Tourism in the Lao PDR is just at its inception and is not considered as one of the major threats of to biodiversity; however some best improved practices should start to be disseminated in key crowded places such as the main country caves, and waterfalls. For example, the development of paths, the use of non-fuel boats in caves is to be practiced.

Forest/brush fire:

Fires (human and naturally induced) are known to have played a role in affecting the ecology of forests in the Lao PDR. Savannah burning occurs every year, especially in dry season. In addition to savannah burning, scrub forest and rangeland are also burned as a result of uncontrolled slash-and-burn, which includes burning dry grasses for animal grazing (MoNRE, 2013). There are, however, no records of burned areas.

Over-exploitation of natural resources:

Overhunting and over-harvesting contribute greatly to the loss of biodiversity, killing numerous species over recent years. There is a long tradition of hunting in Lao PDR; rural communities are dependent on hunting and harvesting of wild products to supplement seasonal rice harvests. Hunting for trade has a greater impact on wildlife than hunting for local subsistence and is often conducted by outsiders; even where locals are the main hunters, they are usually acting to supply externally initiated opportunities. In Lao PDR, especially in the rural area, hunting is more related to men and collection of NTFPs can be more with females depending on the NTFP. Men are more involved in timber collection.

Commercialization and trade in wildlife products has also increased with higher prices and improved access to previously remote areas. The wildlife trade is threatening the very existence of certain species and natural communities. The pressure on NTFPs and wildlife in the Lao PDR has also increased greatly because of trade demand.

The majority of the Lao population is highly dependent on forest and NTFPs for their subsistence. NTFPs are a traditional and important component of the subsistence livelihoods of the majority of Lao's population. Some NTFPs such as Styrax benzoin (the resin extracts from Styrax tonkinensis and use for incense), resins, sticklac, cardamom were traded locally amongst the Lao population as well as with the neighbouring countries (Stuart-Fox, 1998). It has become increasingly common to find villagers using NTFP sales as means of obtaining rice, their staple food, in addition to the more normal household and other cash requirements.

Nevertheless, traditional hunting (only for consumption) may not have too much impact to NTFPs. But a commercial market for wild animals, dead or alive, which have bought people to go hunting, For example, animal parts required for traditional medicines or valued meat increases the threat of over harvesting.

There is, however, a growing trend among the younger generation to reject the perception that these animal based medicines are of any value, and there is a trend towards stopping to eat meat from endangered species. Wildlife however is still at great threat from the existing generation's demands.

Invasive Alien Species:

Many Invasive Alien Species (IAS) have been introduced into the Lower Mekong Basin (LMB) region for economic and aesthetic purposes, while several others have entered accidentally (Miththapala, 2007). The spread of IAS in the region has been aggravated by rapid development activities such as modification of inland water systems for water management projects (e.g. dams, diversions), and aquaculture development (e.g. inland fish farming). Those IAS species are a major threat to wetlands and livelihoods in the LMB (IUCN, 2006).

For instance, Giant Mimosa (Mimosa pigra) is one of the worst environmental weeds of the Mekong River Basin, also on the list of 100 of the world's worst IAS, and can be found in upland agricultural systems in Northern Provinces of the Lao PDR (Miththapala, 2007). IUCN (2006) highlighted that "It is a serious agricultural weed in the LMB often establishing in areas along streams and canals and then invading adjacent rice fields" (.p3).

Moreover, some aquatic fauna have been introduced for aquaculture in Lao PDR. They have proven to be negative to the native species (Miththapala, 2007). Tilapia (Oreochromis spp.) is a native from Africa, this fish species have been introduced as aquaculture in Lao PDR where it has been declared an invasive species.

Miththapala (2007) also highlighted that IAS are directly and indirectly affecting human livelihoods; especially inland water systems are particularly vulnerable.

Pollution:

Environmental pollutants can generate various toxicities that can prevent normal growth of biological organisms and their reproductive and survival capabilities. Water pollution from industrial sources has been identified in the Lower Mekong Basin (LMB), especially in the capital cities of Vientiane and Phnom Penh, and more generally in northeast Thailand and the Mekong Delta. Elevated levels of heavy metals have been found mainly, down-stream

of Phnom Penh and on the Mekong Delta, in areas with heavy boat traffic and high population densities (MRC, 2010).

Forms of pollution that affect biodiversity in the Lao PDR include nutrient and chemical run-off from agricultural areas and urban lands. For example, excessive fertilizer, pesticide, and herbicide use leads to excessive levels of nutrients in soil, and has also caused increasing environment pollution. Likewise, pesticides deter beneficial insects.

Therefore, it can be seen that the aquatic systems are affected with water pollution from domestic, aqua cultural and agricultural sectors.

Moreover, pesticides and agro-chemicals can have a negative impact on water quality which can affect aquatic biodiversity and other forms of biodiversity. Lao Farmers have used pesticide in their agricultural activities.

The GoL has addressed the above issues by adopting the integrated water resources management (IWRM) approach, among others. Moreover, the GoL has recently passed the Fisheries and Aquaculture Law and is also promoting the role of community-based resource management that build on traditional regulatory systems.

Climate Change:

As a result of the Lao PDR's geographical location, its climate is dominated by monsoonal variability, with the southwest monsoon particularly contributing to high rainfall and high temperatures from May to September. The monsoon contributes to a seasonal cycle of rainfall where more than 70 per cent occurs during the wet season.

According to the USAID Mekong Adaptation and Resilience to Climate Change (USAID Mekong ARCC) project, the Lao PDR will likely experience pronounced changes in rainfall and temperature patterns by 2050 with significant ramifications for ecosystems, and the communities and the livelihoods that support them. USAID Mekong ARCC also states that large rainfall events (e.g. greater than 100 mm/day) will occur more frequently and daily maximum temperatures will rise by roughly 2°C to 3°C in the Lao PDR, with higher increases to the south.

2. SOCIO-ECONOMIC DECISIONS THAT INFLUENCE BIODIVERSITY TRENDS

Part 1, Section 1, discussed the nature, and current level of biodiversity resources. Part 1, Section 2 (this section), discusses the factors that indirectly influence those trends. These include the land use decisions made at the national and household levels in response to economic opportunities and in support of socio economic developmental goals.

2.1 The degree of appreciation of the economic value of ecosystems services

Macroeconomic policies in most ASEAN countries (including the Lao PDR), have traditionally relied on a few direct products of natural resources and ecosystems (timber, agricultural production, fisheries etc.) to help generate foreign exchange and spur economic growth. Other smaller scale products used at the household levels such as NTFPs, as well as environmental services provided by the same ecosystems are not yet well documented and, thus, not yet well appreciated.

In 2002, an economic valuation study was conducted (MAF and WREA, 2004). The NBSAP of 2004 also highlighted the values of biodiversity. A few other studies were subsequently conducted on wetland areas (e.g. the That Luang case study) as policy briefs for decision-making and planning processes. The results of these and several other studies have not been adequately communicated to key stakeholders and little follow-up has been done so far. A contributing factor to the lack of appreciation is the gradual shift in values in response to social modernization of traditional values. This is often intimately linked to natural resources protection gradually giving way to consumptive lifestyles that abet the unsustainable use of natural resources.

The GoL and other stakeholders are now participating in global dialogues to increase appreciation of the value of ecosystems and biodiversity. Examples are the valuing environmental services such as carbon sequestration and water generation through mechanisms like REDD+ and Payment for Environmental Services (PES). Several pilots on REDD+ and PES have been launched in the country.

2.2 Mixed results from Investment and Trade Strategies

As a result of attractive incentives, Foreign Direct Investments is a significant source of government revenue and is accelerating economic growth. By value of investment, the top 5 sectors are hydropower, agriculture, mining, industry, and handicraft and services from Thailand, China, Vietnam, France and Japan (MPI, Poverty Environment Initiative

(PEI) Investment in Lao PDR: Minimising the social and environmental impacts, 2009). Studies have indicated mixed results. Investments are leading to increases in local income due to employment, but insufficient environmental concerns have also been noted. Items (a) to (g) below are brief excerpts of a report by the Ministry of Planning and Investment (MPI) which indicates issues in the implementation of investment trade strategies (MPI, Poverty Environment Initiative (PEI) Investment in Lao PDR: Minimising the social and environmental impacts, 2009).

a) Plantation agriculture. There has been a rapid influx of foreign investments in commercial plantations such as plantations of rubber, sugar, cassava, maize, jatropha and eucalyptus across the country. It has been reported that a good number of concessions, the processes of investment appraisal, approval and monitoring has not been sufficiently clear.

b) Mining. There is a continuing upsurge of mining projects in Lao PDR, for precious and industrial metals and coal. As of 2008, The Strategic Development for Energy and Mining up to 2020 said that there were 118 companies and an equal number of projects which received concessions in surveying and exploration of mines. Of these, 46 companies and 80 projects belonged to domestic investors, while external investors accounted for the remaining 72 companies and 101 projects. The WREA has warned about the increasing competition for land and water resources due to mining activities and the risk of water pollution due to hazardous chemicals, from improperly managed discharges. More assessments must be made to evaluate the short term profits versus the long term costs (environmental degradation, loss of ecosystem services, clean-up costs etc.)

c) Hydropower. The Lao PDR is estimated to have a hydro-electric potential of about 26,500 MW, excluding the mainstream Mekong. The Government has to date signed MoUs, or is undertaking studies, of more than 70 hydropower projects. Of these, 15 are either operational or under construction. Hydropower's social and environmental impacts include flooding of forested areas; changes in natural water flows; loss of agricultural land (especially rice fields); loss of biodiversity, as well as social impacts due to resettlement of the rural poor. Adding to this would be the potential conflicts over the use of water resources for power generation and irrigation.

d) Wood and wood products. The growing demand for wood products has led to deforestation and forest degradation which in turn threatens safety nets of the poor

including NTFPs and wildlife habitat, watershed protection, biodiversity, and the ecotourism industry. The deforestation rate is estimated at 53,000 ha per year.

e) Major infrastructure projects. Infrastructure projects such as road construction have also become a key source of deforestation.

f) Upland agriculture intensification. Cross border trade between regional and domestic traders is happening in the Northern provinces. This has stimulated diversification away from rice into a limited number of marketable cash crops such as maize and rubber. Mono cropping, the use of pesticides, and steep slope cultivation are causing substantial losses in agrobiodiversity as well as massive soil erosion (EPA 2009).

2.3 Poverty incidence and resource management

The decline of the natural resources biodiversity loss results from strategic land use decisions at the macro level as well as day to day micro (or household) level decisions. Rural poverty causes the over extraction and unsustainable use of forests, soils, water bodies, and aquatic resources by communities who depend directly on these resources.

While the GoL has made remarkable progress in reducing the poverty incidence from 46% to 26.9%, high poverty incidence persists in the mountainous areas and the poverty rates among all ethnic groups (except the Lao Tai) are higher than the national average.

A poverty assessment conducted in the pilot site of Attapeu province under IUCN-UNDP-MRC (MAF-MWBP2006) indicated that villagers in poverty stricken districts attribute limited access to land as one of the primarily causes of poverty. A recent WFP study found that two thirds of the rural population perceives that they are food insecure or are at risk of food insecurity should a shock occur during the year (WFP, 2007). Thirty eight percent of children less than 5 years of age are underweight and 41% suffer from malnutrition (WFP, 2007).

In rural areas, the employment situation is such that 12-15% of the total workdays are involuntarily stopped of work. Workers belonging to ethnic groups and those in relocated and regrouped villages face a higher incidence of unemployment. There is also landlessness in 15% of rural households.

The poor are also vulnerable to hazards including those from disasters and as a result of the impacts of climate change. In the years between 1970 and 2010, about 33 natural hazards (including floods and drought) were registered, affecting 9 million people and causing economic damage of up to USD$ 400 million. Forty six percent of the rural population is believed to be vulnerable to drought. Approximately 188,000 households are at risk of food insecurity due to these droughts (WFP, 2007).

2.4 Current mechanisms for allocating land use and managing land use impacts

The lack of clear and enforced boundaries of villages and protection forests often leads to disputes and infringement of existing land use rights. Inadequate land registration due to inadequate land tenure maps exacerbates the situation. The EIA system is still relatively young and constrained by design and implementation gaps. The EIA process starts after the signing of project MoUs, rather than before and the review of EIA results by an expert panel is done only on a case-by-case basis. Mechanisms for public participation are not yet clear (PEI, 2011).

The GoL is in the process of making corrective measures to these inadequacies. A moratorium has been declared in mid-2012 to suspend the approval of new applications for mining, hydropower and plantations rending an assessment of the current investments and revision of regulations. Implementation of Environment and Social Impact Assessment (ESIA) has begun, however increased transparency in this is needed to ensure all possible impacts are identified. More work must be done to identify alternative forms of economic revenue which benefit from the Lao PDR's non-extractive natural resources (e.g. ecotourism)

In Savannakhet province, there is a quota of timber targeting 36 large-scale wood processing and furniture factories. With the support of the MPI and PEI project, at least six provinces are piloting 'due diligence measures' in order to better review investment proposals, conduct ESIA, and monitor the impacts of investments. More information on the GoL initiatives is discussed in Part III.

3. ENABLING POLICY AND INSTITUTIONAL FRAMEWORK

Part 1, Section 2, discusses the land use decisions that influence the state of biodiversity resources. Part 1, Section 3 (this Section), further discusses the nature of key policies and programs as well as the institutional framework that can promote biodiversity.

Knowledge of this framework will enable those concerned about biodiversity to understand the following*:*

- *Government targets which will increasingly depend on direct products and services from biodiversity resources;*
- *The kinds of Government programs that can provide opportunities to support biodiversity concerns;*
- *What thrusts of Sector Plans may have potential adverse effects on biodiversity;*
- *Activities which will need to be better assessed and monitored;*
- *How to more effectively influence the planning and allocation of resources to biodiversity;*
- *The capacities that need to be strengthened and how to tap the civil society and private sector; and*
- *The range of traditional and innovative funding that may be tapped to support biodiversity*

3.1 The 7th NSEDP and 8th NSEDP – Key achievements, outstanding concerns and the GoL priorities to 2020

3.1.1 Gains and Gaps of the 7th NSEDP National Socio-economic Development Plan

Part 1 of the 7th NSEDP cited the key achievements and remaining issues of the 6th NSEDP. These included political stability, steady growth moving from an extraction to a service based economy, poverty reduction, and regional and international cooperation. At the same time the perceived outstanding issues include the following:

- Distribution of gains from growth among the people and across the country;
- More focus is needed on government investments (counterpart funding, monitoring, etc.);
- High proportion of international support in the national budget;

- Inadequate planning of the labour market;
- Major exports are from natural resources risking world financial crisis; and
- Poverty has been reduced, but the pace of poverty reduction has been slow

The previous 7th NSEDP was established to cover the period 2011 to 2015. The main targets of the plan were:

- Maintain economic growth at 8% GDP, with a target to reach USD$ 1,700 per capita in 2015;
- Achieve MDGs, full integration with ASEAN;
- Lay the foundation to graduate from LDC status by 2020;
- Ensure sustainable development by integrating economic development with socio-cultural development and environment protection to the nation's advantage; and
- Ensure political stability, fairness, public security, and support international cooperation

Table 1:Summary of selected 7thNSEDP targets relevant to Biodiversity.

Economic Targets	
• Increase rice and livestock production and irrigation; • Establish 8 electricity power plants and link Power Grids; • Complete 75% of the geographical mining maps; • Attract 2.8 million tourists/year; Expand regional roads, and supply clean water to 67% of the total population; • Expand telecommunication services; expand databases.	
Social Targets	**Natural Resources Management**
• Reduce poverty rate to 19% of the total population • Increase the enrolment ratio and the rate of continuous studies; • Reduce maternal and child mortality rates;	• Minimal impacts of development processes; • Forest cover - 65% of total area (by 2015 or 2020); • Complete land allocation, development zoning and land use plans;

- Clean water usage - 80%;
- Unemployment rate below 2%;
- Labour ratio in agriculture sector - 70%;
- Build 700 cultural villages, 1000 cultural families and more central parks; and
- Enhance the role of women in the national assembly.
- Campaign against global warming;
- Preserve mineral resources (65% of total area of mines);
- Natural disaster prevention (forest fires, droughts, floods, etc.);
- Restore the disaster affected environments
- Better water resource management of the Mekong River; and
- Environmental protection of cities and communities.

3.1.2 The 8th NSEDP: Key targets relevant to Biodiversity

Building upon its predecessor, the most recently developed 8th NSEDP (2016-2020) aims at graduating the country from its current least developed country (LDC) status. It is set in the context of the government's longer term planning and, in particular the 10 year plan to 2025 and the 2030 Vision.

The overall objective of the 8th NSEDP is to achieve continued political stability, peace, and order in the society; the poverty of the people is reduced significantly in all areas; and that the country is developed out of the status of a LDC by 2020 through continuous, inclusive along with sustainable growth and green growth development; maximum effective management and utilization of natural resources; the development enhanced through the national potentials and advantages; and has participated, with ownership, in regional and international integration. The overall goal to acknowledge and enhance environmental management is particularly reflected in the 3rd Outcome of the 8th NSEDP:

- Natural resources and environment are effectively protected and utilized according to green and sustainable direction; Readiness for coping with natural disasters and climate change effectively and reconstructing the damages from natural disasters for the better.

The three main outputs of Outcome 3 of the 8th NSEDP are as follows:

- Output 1 – Environmental Protection and Sustainable Natural Resources Management

- Output 2 – Preparedness for Natural Disasters and Risk Mitigation
- Output 3 – Reduced Instability of Agricultural Production

Key targets related to biodiversity to be achieved under Outcome 3, Output 1 include the following:

- Land use classification is completed for all parts of the country.
- Forest cover reached 70% of the total area by 2020 or complete land classification, zones and recover forest cover to 70% of total area.
- Reforestation area reach 1.5 million hectare by 2020.
- Research and classification on mineral resources are completed as reference for identifying potential minerals for exports as raw materials and domestic consumption, and enabling estimation on maximum and minimum quantity of the minerals as information for identifying the directions to use minerals in the most effective manner.
- The water resources management is comprehensively in line with principles on integrated water resource management which is in place in 7 basins of development priorities (Nam Ou, Nam Ngeum, Sebangfai, Sebanghieng, Nam Ngiep, Nam Theun-Nam Kading and Sekong).
- Complete the design of a study on the characteristics of hydrology, physical types, chemical hazard in the river, water classification, exploitation of surface-underground, reservoirs and ground water to ensure balance and sustainable in water management and protect the ecosystem.
- Pilot program on establishment of model national natural parks in 2 areas: Nam Att-Phu Leui and Nakai-Nam Theun National Conservation Areas.
- Establish mechanisms to manage and monitor the quality of the environment across the country by setting up 1 national laboratory and3 regional laboratories for water quality testing (North, Central, and South); establish stations for monitoring air quality in the 3 regions.
- Complete brainstorming and establishment of mechanism for creating green and clean towns, green and sustainable rural development.

3.2 MONRE Vision towards 2030, Strategy 2025 and Action Plan for 2016-2020

In accordance with the Prime Minister Decree on the preparation of the 8th National Social Economic Development Plan, as well as the guidance from the Ministry of Planning and Investment, all Ministries and Provinces were required to prepare the above mentioned documents. The Ministry of Natural Resources and Environment's long-term direction will focus upon 5 key themes (see figure 8): (1) Sustainable Management and Planning of the

use of Natural Resources and Environment, (2) Sustainable Environment Planning for Cities and Rural Development, (3) Strengthening Capacity of Lao PDR on Climate Change Adaptation and Mitigation, (4) Maintaining and Enhancing Regional and International Integration, and (5) Building MONRE Institutional Capacity Effectively, Efficiently and Sustainably.

MONRE's vision toward 2030 was developed based on the government vision for socio-economic development towards 2030, National Growth and Poverty Eradication Strategy, and the 9th National Congress of the Lao People's Revolutionary Party, and regional and international policies such as the Millennium Development Goals and MEAs: to achieve 70% of forest area/cover and graduate Lao PDR from the Least Developed Country by 2020. In order to contribute to achieve government vision towards 2030, the MONRE's vision towards 2030 focuses on: "Making Lao PDR Green, Clean and Beautiful, based on Green Economic Growth, to ensure Sustainable Resilient Development and Climate Change".

The development of the 10 year National Natural Resources and Environment Strategy 2016-2025 (NRES 2025) has been based on government directions and policies including National Socio-Economic Development Plan 2011-2020, the National Strategies for Economic Development and Poverty Eradication, the 9th National Congress of the Lao People's Revolutionary Party as well as on regional and global orientations and policies such as the Millennium Development Goals and MEAs. Therefore, it is very important to actively coordinate and cooperate with all the key sectors and partners at local, central, regional and international levels and involve local people in the implementation of this strategy.

In order to achieve MONRE's vision towards 2030, the overall goal of the 10 year strategy focuses upon the following: "In order to achieve Vision 2030 build Lao PDR Green, Clean and Beautiful, MONRE will, in cooperation with line sectors and international organisations, ensure and implement an effective and efficient natural resources management and development system to support the national economic development in the direction of green growth and achieve sustainable development".

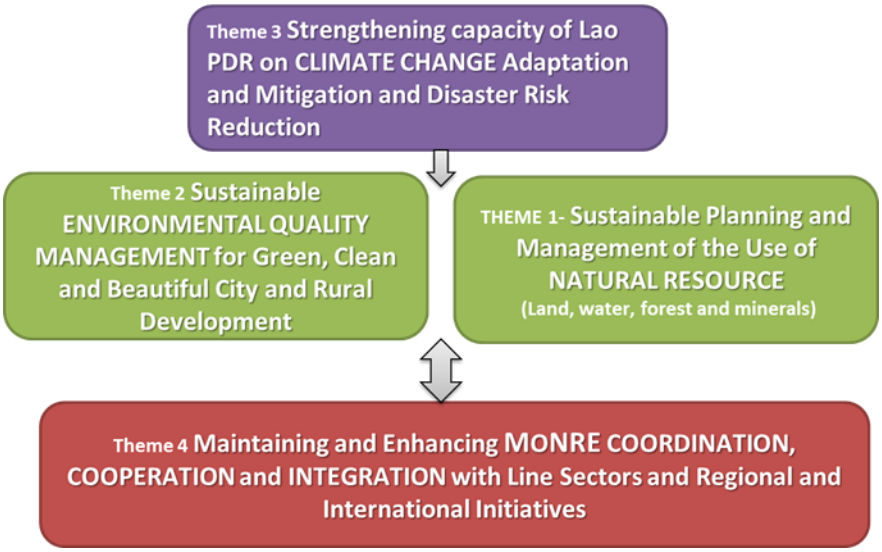


Figure 8: MONRE Strategy 2025 and Action Plan 2016-2020

3.3 Sector Policies and Strategies

The GoL actions are guided by sector-specific strategies. Some of these sector strategies were prepared before the 7th NSEDP; others are only recently promulgated, while others are still in preparation. Below are selected sector strategies that have varying provisions with direct or indirect implications to Biodiversity.

Table 2: List of key policy and strategy papers

Sector Plan	Key thrusts with implications on Biodiversity
1.0 Sector Plan directly contributing to biodiversity	
Strategic Framework for National Sustainable Development Strategy (2008)	Provide analysis of the current interaction between economic decisions and environmental soundness in each sector. Provides guidance in the development of balanced programs.
National Growth and Poverty Eradication Strategy (to 2020)	Transition from slash and burn systems to permanent agriculture, the resettlement of ethnic groups, and the provision of NRM based livelihoods.
Agriculture Strategy 2011-2020	Lowland agricultural modernization adapted to climate change and conservation of upland ecosystems.

Forestry Strategy to 2020	Establish sustainable forest management system including participatory mechanisms for all three forest categories (NPAs, protection and production forests.
Lao Nutrition Strategy to 2020	Promote dietary diversity especially among ethnic groups, protection of diversity sources.
National Water Resources Policy to 2020 (under development)	Establish IWRM, particularly at sub watershed levels, and their governance through River Basin Organizations (RBOs).
National Action Plan for Adaptation to Climate Change (NAPA)	Establish programs to increase resilience to the impacts of climate change.
National Agricultural Biodiversity Programme (NABP)	Promote the conservation and sustainable use of agricultural biodiversity.
Tourism Strategy to 2020	Promote community-based ecotourism and environmentally sound tourism business.
2.0 Cross – Sectorial Plans that can enhance biodiversity conservation and sustainable use	
Strategic Plan on Governance for 2011-2020	Upscale successful innovations in governance such as the allocation of District Development Funds and establishing mechanisms for greater citizen participation in planning, prioritization and civil service development.
Education Sector Development Framework (2009-2015)	Provide inclusive education for disadvantaged sectors (ethnic groups, girls) and adopts alternative modalities such as village-based community learning centres,
National Strategy on Information Technology (2010)	Upscale information technology to be used in the NSEDP and poverty eradication, including the need to prepare legal instruments to work with different sectors in order to protect and provide benefits nationwide.

3.4 The enabling legal framework

The above strategies are supported by a range of laws that define the scope of biological resources, regulate their use, and assign responsibility for administering these resources. There is a law for each subsector– forestry (amendments to this law are currently pending as of 2016), agriculture, fisheries, land and aquaculture. There are also laws that deal with cross cutting issues such as lands, wildlife, and environmental protection. The laws establish certain standards, but many of these now need to be updated in the light of new scientific results and international agreements relevant to sustainable development, including the Science and Technology Law (in draft version).

The GoL is also in the process of preparing various draft legislations that would further strengthen the integration of the environment in economic decision making. These topics of legal amendments include the following (adopted from the EPA report, 2009):

- Clarify of roles and responsibilities of different authorities to avoid overlapping tasks;
- Strengthen environmental monitoring and compliance monitoring;
- Include social assessments in EIA by adopting Initial Social and Environmental Examination and the Strategic Environmental Assessment approach;
- Provide the legal basis for implementing international conventions and agreements;
- Develop decrees and regulations to unify environmental standards; and
- Develop decrees and regulations on urban environmental management

3.5 The Institutional Framework

Table 3: List of national institutional arrangements related to CBD/NBSAP.

Concern	Agency	Overall mandate
A. Responsibilities for the protection of ecosystems and their resources:		
1.Ecosystems		

Forestry	MAF, MoNRE	Protection, rehabilitation, land use regulation and development. Regulation of use of forest and NTFP resources.
Agriculture	MAF	Protection, development and food safety.
Aquatic resources	MAF, MoNRE	Protection, development and food safety.
Ecology and Biotechnology	MoST	Protection and rescue ecology system by using biotechnology.
Urban	MoPW&T and Local Authorities	Land use and zoning plan residuals management (e.g. solid waste).
2.National Protected Areas and National Protection Forests	MoNRE Local Authorities (Provincial, District, Village)	Supervision and direction.
3.Provincial, district, and village Protected Areas and Protection Forests	Local Authorities (Provincial, District, Village)	Supervision and direction.
B. Responsibilities in permitting the use of natural resources within the ecosystems and the biodiversity therein :		
1.Forestry, agriculture, aquatic commodities	MAF	Review/approval of investment applications and compliance.
2.Large agricultural plantations	NLMA (formerly), Prime Minister, National	Review/approval of investment applications and compliance.

	assembly	
3.Small agricultural plantations	Provincial Government	Review/approval of investment applications and compliance.
Genetic resources	MoST, MoNRE, MAF	Preparation of the national framework and action plan for ABS.
4.Mineral resources	Min of Mines, MoNRE	Review/Approval of investment applications and compliance.
5. Water resources	MoNRE, MAF	Review/Approval of investment applications and compliance.
6. Water for hydropower	MoNRE	Review/Approval of investment applications and compliance.
7. Tourism	LNTA, MoNRE	Review/Approval of investment applications and compliance.
8. Bio-prospecting	MoST	Protection of IPR, Investment priorities and business regulation.
C. Functional responsibilities for ensuring relevant land use and environmental soundness		
1.EIA/ESIA	MoNRE	Administration of the EIA/ESIA process and approval/disapproval.
2.Overall land use regulation	NLMA, MAF	Planning standards and review of land use plans.
3.Pollution control	MoNRE, and Local authorities	MoNRE - Compliance monitoring of anti-pollution laws, including suspension and closure Local authorities – compliance monitoring.

Lao PDR's previous government structures for natural resource management were relatively complicated, as there were overlapping roles and responsibilities between key agencies. In 2011, this system was reformed, with the creation of MONRE from WREA (Water

Resources & Environment Administration) previously housed within MAF. MONRE currently includes 17 offices and departments.

The current responsibility of biodiversity management rests with several agencies. The direct geographic responsibility for the key ecosystems and protected areas is with MAF and MoNRE. Other agencies are involved in specific developmental and regulatory functions for specific commodities or products within an ecosystem.

MAF and MoNRE have a fundamental role in ensuring the protection, use, and monitoring of biodiversity. This is because protection starts with proper land use planning, which is based on land capabilities, and this is MAF and MoNRE are mandated to do. MAF, MoNRE and MoST also regulate and have jurisdiction over the use of living resources in ecosystems.

3.6 Directions in Governance reforms

The above institutional framework will undergo gradual transformations over the next decade as the GoL implements its Strategic Plan for Governance. Under this plan, several ground-breaking reforms that have been piloted in the four provinces (below), for some time, will be scaled up nationwide:

- District (village) Development Fund and One Door Service Centres
- Civil Service reforms including implementation of Personnel Information Systems
- Small Grants for capacity building and Government Financial Information System

The above reforms will have indirect but a strategically significant effect on the protection of biodiversity and ecosystems. For instance, the District Development Fund (DDF) involves block grants direct to districts that will have more leeway to implement more responsive projects, including those that address local environmental issues. Projects identified for DDF funding will also go through a participatory identification process which will involve citizens in the locality. Civil service reforms, on the other hand, could contribute to the alleviation of problems associated with individual capacities, particularly the personnel in agencies responsible for biodiversity management in protected areas and other important areas.

3.7 Implementing biodiversity related MEAs and Conventions

In addition to the Convention on Biological Diversity, Lao PDR is a party to several Multilateral Environmental Agreements (MEAs) and Conventions in support of biodiversity and environmental conservation. Several important MEAs and Conventions are listed (although this list is not exhaustive) in Table 4 below. Implementation of MEAs and Conventions has met varying successes dependent upon the level resources provided and

the level of commitment given by National Focal Points. For example, the Ramsar Convention coordinated through the Department of Environmental Quality Promotion at MoNRE has enjoyed relative success since its ratification in 2010. Since this time, two wetlands sites have been designated and ongoing support towards implementation has been provided by IUCN and several donors including the Government of Finland, GEF and KFW (German Development Bank).

In general, challenges related to the implementation of MEAs and Conventions are partly due to resources available for ongoing implementation, capacity and knowledge of National Focal Points and responsible government agencies, and most importantly, coordination between stakeholders. Enhancing the coordinated implementation of MEAs and Conventions would greatly support achieving the strategies and targets laid out within the NBSAP 2016-2020.

Table 4: List of MEAs and Conventions Lao PDR is a party to.

Biodiversity MEA / Convention	Status / Year	Implementing Agency	Actions Implemented
Convention on Biological Diversity (CBD)	Accession / 1996	DFRM (MoNRE), DOF (MAF), BEI (MoSt)	• NBSAP 1 has been prepared and implemented • 4th and 5th National Reports to the CBDS prepared and submitted. • NBSAP 2016-2025 in the process of being completed
United Nations Framework Convention on Climate Change (UNFCCC)	Non-Annex I Party / 1995	DDMCC (MoNRE)	• National Adaptation Programme of Action has been prepared • Initial National Communication submitted to the UNFCCS in 2000 • Second National Communication submitted in 2013
United Nations Convention to Combat Desertification (UNCCD)	Ratification / 1996	DFRM (MoNRE)	• National Adaptation Programme submitted in 2000

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Accession / 2004	DFRM (MoNRE), BEI (MoST)	• Biennial report submitted to the CITES Secretariat in 2010
The Convention on Wetlands (RAMSAR)	Contracting Party / 2010	DEQP (MoNRE)	• Two wetlands sites have been designated as Ramsar sites. • CEPA actions and site management plans submitted in 2012 • COP11 National Report submitted in 2012 • COP12 National Report submitted in 2015 • World Wetlands Day Reports submitted for 2010, 2011 and 2012.
World Heritage Convention	Ratification / 1987	Lao National Commission for UNESCO (MoES)	• Technical cooperation for the enhancement, development and protection of the Town of Luang Prabang. • Support for the conservation and management of Vat Phou and Associated Ancient Settlements within the Champasak Cultural Landscape. • Conservation Workshop for Phong Nha Ke Bang National Park (Vietnam) and Hin Namon National Conservation Area (Lao PDR).
The International Treaty on Plant Genetic Resource for	Accession / 2006	MAF	• Actions have either not been implemented or not documented on the ITPGRFA website.

Food and Agriculture (ITPGRFA)			

3.8 Civil Society as contributor to biodiversity conservation and sustainable use

There are three levels of Civil Society; Mass Organizations (e.g. the Lao Women's Union, the Lao Youth Union, and the Trade Union), Non-Profit Associations, or NPAs (mostly, local associations), and International NGOs, or INGOs. The Lao Women's Union and Lao Youth Union are active in welfare promotion within their respective sectors.

NPAs and INGOs are involved in a wide range of activities which support human development. Many of the activities are community-based and receive support from various bilateral, multilateral, and philanthropic organizations. Many of the community activities supported by these organizations address environmental issues (including biodiversity issues) and are coordinated with the local offices of GoL agencies. Many have gained national recognition for innovative actions. Examples of good practices are included in an indicative list of good practices in item 4.2 below.

There is a network of 46 Lao Civil Society organizations (CSOs). Many of the member organizations work with natural resource management. The network supports dialogue between government and CSOs, resource sharing, and capacity development.

INGOs, on the other hand, are active in many sectors and are described further in the section on ODA. Seventy five INGOs have agreed to work together to share knowledge resources and participate better in the dialogue, which set the development agenda. The INGO association regularly discusses development issues through six working groups composed of members working in similar fields. The working groups are: education, health, land issues, civil society, disaster management and human resources management.

Civil society organizations participate in different levels of government discussion on policies, programs and enforcement. The nature of the participation is partly guided by a recent law on NPAs.

In addition to the above networks, CSOs, concerned individuals from government, and NGOs have also established several information networks to support the free flow of development information, which can be used for capacity building, constituency building and policy advocacy. Among the more well-known knowledge networks are Lao 44 and Laofab.

3.9 The Private Sector as potential contributor

There are 126,000 enterprises of which 90% are small and medium scale. Small-scale enterprises involve nine employees or less with a capital of 250 million kip, while medium-scale enterprises have less than 99 workers and a capitalization of 1 billion kip.

Business firms have been tapped in the recent years to help the GoL with its agricultural programs, especially in the harvesting and milling of rice. The extension strategy under the 7th NSEDP seeks to tap business firms working in the agricultural sector (at the provincial and district levels) with the dissemination of agricultural technologies.

The Lao Chamber of Commerce serves umbrella groups of 19 business associations. Among the 19 business associations, 10 deal with topics that are potentially linked to biodiversity. These associations include those working furniture, plantations, hotel and restaurants, and handicrafts. There are early indications of some business firms and some business associations initiating actions to make their investments more environmentally sound. The Association of Tourism agencies, for instance, are working closely with the government to expand work on community-based tourism. The Association of Plantation Owners have agreed to disseminate information on good practices for plantations.

Several firms are also redesigning their operations towards environmental and social goals. STORA ENSO, for instance, has redesigned its plantation operations to include intercropping and agroforestry practices with the goal of fostering local engagement and benefits from tree plantations. This is described further in the section on good practices. Another firm involved in the Nam Theun hydroelectric project have committed to give at least USD$ 1 million to help in establishing their operating capacity in Nakai Nam Theun National Protected Area. There are some incentives from private sector companies which are aimed at support NPAs and other conservation initiatives, including 1% of revenues from Nam Leuk (part of the Nam Mang Watershed), ecotourism activities at Nam Kan NPA, and some from mining companies. Sepone mining revenues helped support Siamese crocodile surveys.

In early 2012, the Ministry of Planning and Investment (MPI), with support from partner donors, convened the first national forum on corporate social responsibility (CSR). Forum participants agreed to move beyond the usual Public Relations approach into the new concept of CSR. This requires business firms to institute environmentally sound production practices in their operations to prevent hazardous pollution in the affected communities.

3.10 Overall national, institutional and individual capacity for BD management

A National Capacity Self-Assessment (NCSA) was conducted by the GoL and partners in 2009 with the support of GEF and UNDP. Over 55 agencies and NGOs were involved in the 24 meetings. The NCSA assessed capacities to implement the GoLs commitments to the 3 major conventions on climate change, biodiversity and combating desertification. Three aspects of capacity were assessed: national (including policy), institutional and individual levels.

Table 5: National Capacity Self-Assessment.

Capacity constraints	Root causes
National /systemic	
• Lack of clear direction (policies, strategies and action plans) • Limited public and private sector awareness • Limited budgetary allocation to biodiversity	• Low importance accorded to collaboration to implement strategies • High dependency on biodiversity for livelihoods • Concept of sustainable use of biodiversity is still new • Lack of management experience for sustainable use • Ineffective dissemination of Protected Area laws and regulations • Less prioritization on conservation and development of Protected Areas
Institutional	
• Low staff numbers and not enough trained staff • Administrative and HR organization related to NPA Management requires improvement to be more effective. • Limited research budget and access to modern technology and research methods. • Insufficient coordination between key	• Limited budget for human resource development • lack of guidelines for staff development and self-improvement • Lack of meaningful incentive mechanisms • Lack of resources to enforce protection and regulation of use in Protected Areas with unclear boundaries • No sustainable financing mechanism for Protected

sectors and between central and – local agencies • Limited opportunities for providing ToT at the provincial levels.	Areas and • Low priority given to research
	Individual
• Low awareness, motivation and & skills, especially at provincial levels • Lack of ownership of roles and responsibilities • Few researchers and teachers with sufficient skills • Few specialized trainers	• Insufficient motivation to self-learn new knowledge and skills • Problems associated with low pay and opportunities compared to the private sector and • Limited knowledge of foreign languages especially among provincial and local staff

Source: the National Capacity Self-Assessment Report on CBD commitments (WREA, 2010).

3.11 The Financing Framework

a) The 7th NSEDP identified three financial sources which could be used to attain an 8% growth rate. These are separately discussed below in terms of the sources. The table below also indicates the possible means for concerned focal agencies and biodiversity leaders to tap these types of financing to promote biodiversity conservation and use.

Table 6: Summary of source of investments (Adopted from 7th NSEDP).

Source of Funds; portion of total investments and amount needed over the 5-year period	Focus of attention
Government Budget • 10-12% of investment • USD 1.800 million	• Key public infrastructure • Priority projects

Source of Funds; portion of total investments and amount needed over the 5-year period	Focus of attention
• Consists of national and local budgets and special funds Official Development Assistance 24-26% of investments • USD 3,900 million	• Counterpart to grants and Loans • Poverty Reduction • MDG • Social Development
Private Investment (Domestic and Foreign) • 50-56% of Investments • USD 8,300 million	• Commercial projects that modernize the economy, create jobs and provide and strengthen infrastructure
Bank Credit and Communities investments • 10-12% of Investments • USD 1,800 million	• Small and medium sized enterprises

b) Government resources could be provided from the industries' user fees for using natural resources. These include funds going to the Forestry and Forest Resources Development Fund and the Environmental Protection Fund, which in turn are used to finance the protection of ecosystems and maintain the protected areas system. Future sources would be PES, specifically from watersheds and forests (REDD+). The following is a brief description of the three major Trust Funds, their funding sources, and comments on their current utilization.

Table 7: Profile of internally generated Trust Funds that may contribute to biodiversity.

Name	Mandates	Current utilization for biodiversity
Forestry Development	Secure funds from 7 sources. In reality, only few	Funding is shared by many MAF-DoF, DFRM (MoNRE) programs and one of the programs is

Name	Mandates	Current utilization for biodiversity
and Forest Protection Fund (FRDF)	of the 7 sources (such as legal timber sale) are currently being tapped.	the protection forest system and forest rehabilitation project. Thus, funds for FRDF for the protected area system are very small.
Environmental protection funds (EPF)	Secure funds from ODA and Biodiversity and Community Investment Window.	Main focus is to support the provincial government's level of natural resource management initiatives. Most of the funding supports initiatives in and around Nakai Nam Theun NPA.
Poverty Reduction Fund (PRF)	Secure funds from ODA.	The funds focus on the 47 poorest districts and support community-based initiatives in resource management.

c) The following are potential sources of funds that could support the first two Trust Funds described above.

Table 8: Potential sources of funds for incorporation into existing Trust Funds.

Sources	Mandates and Actual Progress
For near to medium term	
Ecotourism	Mandate: Entrance fees and other user fees in ecotourism sites which would be used for improved protected area management. A few protected areas are utilizing this type of support. *Actual: There are no guidelines on how to transfer benefits from this sector to FRDF.*
Mining	Mandate: The Mineral Law of 2008 requires compensation for the impacts of mining to be contributed to EPF. *Actual: No implementing decree yet.*
Hydropower	Mandate: Allocate a portion of the earnings from electricity to the FRDF. *Actual: Lack of coordination between agencies supervising the hydropower investors (MPI, MoNRE and MAF) to identify the basis in determining the level of charges. Still being piloted in 2 watersheds.*

Sources	Mandates and Actual Progress
For medium term use	
REDD+	Mandate: Guidelines are still being formulated *Actual: Pilots being undertaken to gain experience and develop methodologies for local adaptation.*
For long term consideration	
Land Concessions	Mandate: The Forestry Law of 2007 requires forest conversion fees. *Actual: No implementing guidelines yet for payment of large-scale plantations. Responsible agency for collection is not yet identified.*
PES including water use in industry	Mandate: Mentioned in the PM Decree on Protection Forests (2010) *Actual: There is no implementation yet.*
Biodiversity prospecting	Mandate: Allocate a portion of the revenues from biodiversity related products from investors. *Actual: There are no guideline or legal agreements putting in place to encourage or support biodiversity*

d) There are 3 sets of realities that hamper full collection and subsequent allocation of various sources of special funds for biodiversity conservation and use. These include:

- Inadequate information on the financial requirements for biodiversity conservation in protected areas, which should ideally guide the minimum amounts that should be raised
- Inadequate guidelines (e.g. determining the portion to be levied, how this will be levied and who should be levying the amount)
- Inadequate accounting and actual extraction of funds
- Large number of agencies dependent on available funds meaning that a small amount of funds goes to protected area management

e) Overseas Development Assistance (ODA)

Overseas Development Assistance has increased in recent years, especially in 'green' sector as evidenced by a large number of projects being implemented at MONRE and MAF. It remains as a major source of investment in the form of grants or loans to the Government of Lao PDR. Potential direct sources of funding for biodiversity may be expected from ODA for environmental and agricultural sectors. There are a number of projects that have piloted and demonstrated innovative approaches that eventually support biodiversity protection and sustainable use. Notable examples of interventions are:

- Participatory sustainable forest management, REDD+ and value-added NTFP
- Various forms of sustainable agriculture and support to agrobiodiversity
- Various forms of community fisheries and wetland resources management
- Improving capacity in enforcement of regulations on wildlife protection
- Water resources management such as the establishment of watershed management and River Basin Organizations (RBOs) and participatory irrigation management
- Consolidating environmental standards and ESIA protocols

The GoL and donor partners agreed to collaborate closely (Vientiane Declaration on Aid Effectiveness) to ensure the attainment of development aid effectiveness. Six sector working groups (SWGs) have been formed to serve as working venues for dialogue and joint planning among key ministries, development partners, and NGOs. The six SWGs cover the following topics: macroeconomics; private sector; education; health; infrastructure; agriculture, natural resources and rural development; and governance. Selected ministries and projects provide secretarial support and issues; priorities and recommendations are put forward to semi-annual roundtables and to the formulation of the 5-year development plans (NSEDP).The Ministry of Planning, through its Department of International Cooperation, and the UN system has prepared a series of development partner profiles, which include descriptive lists of country portfolio programs.

A funding source related to ODA would be the funding provided by the INGOs. Though much smaller than funding provided by ODA, these are significant in the sense that they provide targeted funding for innovative pilot projects that model certain innovations to support sustainable development in rural areas.

4. GAINED LESSONS AND GOOD PRACTICES FROM THE FIRST NBSAP AND THE WAY FORWARD

Part 1 Section 3 discussed the various policies and programs as well as situations that can be used to justify increased government attention to BD. Part 1 Section 4 (this section) discusses the actual gains and remaining gaps under NBSAP I. It also includes good practices in the various ecosystems by various actors. The good practices provide insights on how to design effective interventions for the next stage. Finally, Sect 4 provides a summary of the key gains that happened in the past NBSAP and outlines the critical needs that need to be addressed under the 2011-2020 strategy

4.1 Quick review of NBSAP 1 targets

As input to the development of this NBSAP, stakeholders reviewed the progress made so far from the first NBSAP that covered the period 2004 to 2010. NBSAP I consisted of 7 Programs, namely:

- Program 1 - Scientific data and biodiversity knowledge development
- Program 2 - Biodiversity management
- Program 3 - Human resources development
- Program 4 - Public awareness and involvement
- Program 5 - Institutional and legal frameworks
- Program 6- NBSAP implementation
- Program 7- International cooperation

The key bottlenecks in the implementation of the NBSAP

Lack of provision for prioritization; lack of clarity of the responsibility and statement of measurable indicators; and inadequate guidance to secure funding for the NBSAP are the main bottlenecks identified during the implementation of the NBSAP 1.

The plan was not very visible because of the lack of a communication program during its implementation. The experience is not very different from the experiences of many other Asian countries. These lessons should serve as a guide in the development and implementation of the next NBSAP.

It should be noted that lack of coordination among various implementing agencies related to MEAs and Conventions likely also contributed to this bottleneck, but was not fully considered by stakeholders during the NBSAP 1 review process.

The key gains and outstanding concerns are here below presented per Program.

Table 9: NBSAP I - Program 1: Scientific Data and Biodiversity Knowledge Development.

Program 1	
Key Gains	**Outstanding Concerns**
• Attained better knowledge on distribution of flora and fauna and their taxonomy (e.g. flora and fauna database, including 100 commercial NTFPs) • Some improvements in research capacity were made through international cooperation • Information exchange has started - an interim clearing house mechanism was established in the ASEAN Biodiversity Centre	• Need clearer priorities in research • Work on the National Wetland Inventory has not yet started • Lack of data sets in the current clearing house • Need to create and maintain a central database

Table 10: NBSAP I - Program 2: Biodiversity Management (7 key components).

Program 2	
Key Gains	**Outstanding Concerns**
Establishment of the protected area system: • Number of NPAs has increased • Established the representative and extensive NPA system; • Promulgated two new RAMSAR wetland sites; • Master plans) were developed for 6 NPAs (out of 24 NPAs)	• Delineation on the ground is needed to prevent conflicts • Majority of the NPAs have no management plans
Improving NPA management standards: • The NPA organizational structure has been established at provincial levels; • Inclusion of NPA concerns in the annual planning process in some provinces; • Upgrading of provincial PA to NPAs;	• Low collection of user fees for the Forest Development Fund, therefore smaller allocation to NPAs • NPAs depend on ad hoc funding from tourism, hydro plants and donors

Program 2	
Key Gains	**Outstanding Concerns**
• Involvement of communities in PA management started in some sites; • The ICAD approach is adopted; • Gradual improvement in management of the 6 NPAs	
In-Situ conservation of threatened species: • Revised the Lao Wild Animal Red List; • Published and disseminated the Lao RED Lists; • Improving capacity through participation in ASEAN-WEN; • Started conservation efforts for the 6 flagship species; and • GoL adopted CITES guidelines	• Habitats are threatened due to accelerated land investments • Low levels of monitoring • The Fishery Law has no implementing guidelines yet
Ex-Situ conservation • 3,000+ varieties of rice germplasm were stored in the International Rice Research Institute in Philippines (IRRI); • Arboretum and zoo were established; and • Ex situ efforts for Giant catfish, elephant and rattan	• Minimal progress • No clear programs for reintroduction of species into the wild • Museum of Natural History is still unaccomplished
Access to benefits • 3 laws were cited by ABS (Domestic Investment Law, Law of promotion of foreign investment, and Intellectual Protection Law); and • Initial capacity building for conservation and utilization of Plant Genetic Resources (PGRFA)	• Minimal progress • Low action to implement the ABS 3 laws' provisions • Dedicated law for ABS is still needed • Biodiversity goods lack good market access, marginal benefits to local producers

Program 2	
Key Gains	**Outstanding Concerns**
Alien and invasive species • Setting up of Biosafety Coordination Committee and preparation of the Biosafety Law; and • Some improvements in LMO monitoring	• Low monitoring compared to the rising need • Responsibility centres is not yet clear
Ecotourism • Ecotourism included in the Tourism Strategy to 2020; • Developed field guides for ecotourism management; • Capacity building for tour operators and local authorities; and • Ecotourism was successfully introduced in the 4 NPAs	• Need to sustain and expand efforts to involve communities
<u>Forest management</u> Forest Law of 2007 defines different forest types while state decrees further defines the land use for each type • 51 production forest sites, some with management plans; • Forest certification achieved by 4 sites (81,000 ha); • Pilots sustainable harvests of NTFPS (rattan, malva nuts and medicinal plants); • International certification obtained for sustainable rattan harvesting; and • More students graduating from forestry courses	• Need for more land use planning • Need for more management plans for forest production • Limited enforcement of Forestry Law provisions on plantations

Program 2	
Key Gains	**Outstanding Concerns**
Industry • ESIA process is upgraded into State Decree and a specific unit for this work has been set up; • Establishing unified environmental standards including emission standards; • Ministry of Energy and Mining mandating environmental planning among its applicants; • Polluter pays principle has been adopted; • Adopted compensation system set up for affected villages; and • The GoL targets 30% for renewable energy	• Implementing guidelines needed for new environmental and emission standards • Low enforcement of recent laws
Agriculture • Transition from shifting cultivation to sedentary agriculture; • Land Classification in 105 districts; • Agro-ecosystem zoning is piloted in 10 districts; • Land allocation to approximately 7000 villages.; • Conservation agriculture technology was adopted in selected provinces/districts; • Research on NTFP started in fallow lands.; • National Agrobiodiversity Programme (NABP) approved by MAF	• More agro-ecological planning is needed • Market access for small farmers
Water • Water committee was formed in 2 sites with planning responsibilities;	• Overlapping functions of 2-3 water agencies

Program 2	
Key Gains	**Outstanding Concerns**
• Accession to Ramsar convention and support to 2 sites; • MoU's with neighbours on species conservation o A MOU has been signed with Cambodia with regards to co-operation with trans-boundary fisheries issues and dolphin conservation; o A CITES related MOU has been signed with Vietnam with regards to wildlife trade control cooperation.	• Protection of river banks and waste disposal • Regional dialogue on dam construction
<u>Urban</u> • Provincial Environmental Strategy in 17 provinces; and • Urban plans for 147 cities	• Minimal progress, lack of manpower capacity • Institutional policies were generated but not fully communicated • Unclear status of effects of urban plans

Table 11: NBSAP I – Programs 3: Human Resources.

Program 3	
Key Gains	**Outstanding Concerns**
• Training support to central office staff of MAFF and WREA; • Skills were transferred through internationally supported research projects and international training for individuals; • Conducted National Capacity Self-Assessment; • Biodiversity conservation related courses in NUoL graduate program.	• Limited support for capacity in local levels and support to other sectors • Unclear training program based on the training needs • Unclear status of education programs

Table 12: NBSAP I –Program 4 - Public awareness and involvement.

Program 4	
Key Gains	**Outstanding Concerns**
• Citizen education in fish conservation zones; • Conduct of commemorative events; • Public participation as mandated in new ESIA regulations; • Use of media for government – citizen linkage; • Disseminated field guides for key species conservation	• Limited media education opportunities • Limited outreach efforts to private sectors • Limited target information to indigenous people

Table 13: NBSAP I – Program 5 - Institutional and legal frameworks.

Program 5	
Key Gains	**Outstanding Concerns**
• Aquatic and Wildlife Law and Fisheries and Aquatic Resources Law; • Updated Forest Law in 2008; • Reorganization for more effective service delivery; • On-going review of NPA management system, EIA and Bio-safety; • Overall governance reforms including piloting decentralized budgeting by local authorities and civil service management	• Need for clearer responsibility structure for international conventions • Governance reforms and legal preparedness need to be up-scaled to other provinces

Table 14: NBSAP I –Program 6- NBSAP implementation.

Program 6	
Key Gains	**Outstanding Concerns**
• Comprehensive list of projects; • Internal and ODA budgets are generally increasing; Piloting various modalities (Small Grants, PES, REDD+, tourism fees)	• Unclear time frames, prioritization actions, indicators and sources of financing. • Mostly donor financings.

Table 15: NBSAP I –Program 7- International cooperation.

Program 7	
Key Gains	**Outstanding Concerns**
• The GoL acceded to 8 international conventions; Heightened regional cooperation for species conservation and dialogue on dam constructions	• With the exception of the CBD, several other MEAs and Conventions lack an implementation plans. • There is a need to enhance synergies and cooperation among all biodiversity related conventions at national level for action.

4.2 The Way Forward

The key gains of the NBSAP I revolve around: a) better awareness of biodiversity issues and opportunities; b) building of human resources; c) developing the "HOW TOs" in biodiversity protection and sustainable use; and d) strengthening the policy & institutional framework. While major gaps persist, many of the gains are taking root and now serve as a foundation for more focused action in the remaining part of the present decade.

NBSAP I: Gaining Better Awareness. There a better awareness and more organized knowledge of biodiversity resources now than in the past. Significant technical information gaps still persist, but now stakeholders have a better idea of the natural capital and economic value represented by the biodiversity resources. There is a better understanding of the current challenges on biodiversity conservation; what can be done about them; and the "win-win" approaches that may be pursued to ensure both conservation and economic growth.

The key challenge for this and future NBSAPs is to back up the knowledge with evidence. The value of resources must be quantified. “You cannot manage what you cannot measure” as the saying goes. There is a need to generate and communicate “evidence-based knowledge” in economic decision making processes at all levels (national and local), and in all key sectors (from agriculture to infrastructure).

Equally important to knowledge generation is how to communicate key biodiversity issues and put them in the hands of those who need to use it. NBSAPs must fully tap into scientific and technological advances, as well as modern information and communication techniques, based on an understanding of stakeholder needs and aspirations, and thereby inspire and enable stakeholders to contribute.

NBSAP I: Building Human Resources. With the support of international partners and through collaboration in various projects, a wide range of training opportunities were made available to an increased number of government and non-government personnel as well as community leaders.

Learning is a long term investment on the part of the stakeholders. The key constraint in past and current efforts is the lack of sustained support of stakeholders who are in the process of learning. There is also a need to ensure that training interventions are clearly linked to priority concerns.

The key challenge for the next NBSAP is to ensure that the training interventions are guided by a human resources development framework that takes into account a systemic and cross-sectorial approach to issues. Human resources development will not only be for government and non-government personnel. It should also provide major support to key stakeholders and business sector, women, youth and ethnic groups. The NBSAP should guide efforts to take full advantage of the benefits of regional and international cooperation; as well as advances in science of learning (both for the young and old) in order to shorten the “learning curves” and help accelerate the learning process.

NBSAP I: Developing the “HOW TOs”. The past NBSAP is a witness to the wide range of experimentation, action research and demonstration of various approaches and technologies for biodiversity conservation and sustainable use. This was made possible by institutional and individual efforts of professionals and, of equal importance, the cooperation of many villages and other local players and local authorities.

Such developed and developing methods include those that deal with participatory planning and inventories, resource management, value addition, enhancing the role of local authorities and, more recently, modalities of PES.

The key challenge in the next NBSAP is how to systematically identify, document, and convert information about success stories, case studies, and informal observations on good experiences into specific "HOW TO" information (manuals, guides, etc.). This will enable other stakeholders to replicate the good practices that have been developed to other areas with similar situations and conditions. These good practices would also include traditional knowledge in sustainable resource protection. Up-scaling efforts need to recognize the power of policy-based incentives to motivate stakeholders to implement good practices. Such incentives include: land security, access to better markets, benefit sharing, and access to technology and support services.

NBSAP I: Strengthening the Policy and Institutional Framework. During NBSAP I, incremental policy changes were addressed. Included was the introduction of new legislation to strengthen the protection of natural resources and manage the risks involved in pursuing agricultural modernization, industrial development and elevated energy use. At the same time, institutional structures dealing with the environment were reorganized to be more effective.

A challenge for the next NBSAP is to ensure that various proposals to amend laws and policies will become part of the law of the land before the end of the decade. The policy reform agenda needs to help reconcile compelling macro-economic targets and the need to protect the resources based upon which these targets are ultimately dependent. The key priority areas of policy reform include the following:

- Proper valuation of biodiversity resources;
- Participatory land use planning;
- Consistent conduct of ESIA following internationally recognized protocols;
- Encouraging environmentally sound business and corporate social responsibility;
- A system for PES;
- A system for equitable sharing of the benefits of biodiversity, especially among stakeholders involved in protecting it; and

- An institutional mechanism to coordinate actions to implement various biodiversity conventions, use of resources and capacities.

NBSAP I: Resource Mobilization (National, ODA, innovative and private sector). While the NBSAP I did not have an adequate resources mobilization plan, international partners rose to the occasion by infusing funds in line with their commitments on international conventions in order to support the initiative.

A Challenge for the next NBSAP would be to develop a deliberate resource mobilization strategy to efficiently use financing that is already in the hands of the GoL (i.e. improve implementation and disbursement rates of current projects), as well as effectively tap potential financing due to the series of global financial crisis and slow recovery that affects the level and predictability of ODA in Southeast Asia. Both conventional (ODA and government) and innovative financing (PES, REDD+, CC, etc.) must be pursued.

Another source of resources would be the private sector itself, specifically around land use rights, plantation development, and land concessions. If the private sector is both mandated and motivated to practice sustainable land management, coupled with ethical business practices (compensation, labour arrangements, etc.), this could potentially place large areas of land under ecologically sound management. But, the way to do so is to demonstrate that sustainable land management means good business – meaning they can either reduce costs of production, or increase yields and incomes.

PART II. NATIONAL BIODIVERSITY STRATEGY: PRINCIPLES, OBJECTIVES AND TARGETS

5. VISION

The people of the Lao PDR value their biodiversity resources in terms of the immediate and long term environmental, economic, and poverty alleviating benefits these resources provide, not only to themselves, but to the global community. These benefits are sustained through protection against abuse, by wise use, and by ensuring that the benefits are shared equitably.

6. PRINCIPLES

The vision is guided by most of the principles originally set in NBSAP I with appropriate amendments to support the values espoused by the CBD Strategic Plan for 2011-2020.

Biodiversity is both a national heritage and natural capital with real economic value. It must be used in a sustainable manner and be conserved and protected with respect for past generations and for the benefit of the present and future generations.

1. Protecting biodiversity also means protecting the ecological, economic, social, cultural and spiritual values and aspirations of the people of the Lao PDR.

2. The NBSAP must be fully consistent with the Socio-economic Development Strategy up to the years 2020 and support, in particular, the targets to maintain economic growth, achieve the 2030 Agenda for Sustainable Development and the associated Sustainable Development Goals (SDGs), observe sustainable development, and ensure political stability and regional and international integration.

3. The sustainable use of biodiversity is a key element of livelihood strategies and food security and is best assured through in situ conservation efforts, made possible by respecting and supporting the knowledge, innovations, and practices of local people who depend on them.

4. The conservation and sustainable use of biodiversity resources requires stakeholder participation and cooperation at local, national, regional and global levels, and also a sharing of knowledge, costs and benefits.

5. The NBSAP must be science based and provide a clear link between biodiversity conservation and economic development.

6. The formulation and implementation of policies and the establishment of a legal framework are necessary as effective measures against biodiversity depletion.

7. Education and the raising of public awareness are essential in ensuring the conservation and sustainable use of biodiversity resources.

8. The NBSAP must be consistent with the global Strategic Plan for Biodiversity 2011-2020 and the 20 global Aichi Biodiversity Targets.

9. The NBSAP should guide national actions on enhancing cooperation and synergies among the biodiversity related conventions that Lao PDR is a Party for better impact in delivering action on the ground.

7. GOAL AND OBJECTIVES

The goal of the NBSAP for the period 2016-2025 is to:

Enhance the role of biodiversity as a national heritage and as a substantial contributor to poverty alleviation, as well as sustainable and resilient economic growth.

The key objectives to support the goal which are also aligned to the global goals for biodiversity are:

1. Institutionalize innovative multi stakeholder efforts to arrest the degradation and enhance conservation of ecosystems and biodiversity resources therein.

2. Provide clear and enforceable guidance for the sustainable use of biodiversity resources to support poverty alleviation and sustainable economic growth.

3. Establish practical mechanisms for ensuring fair and equitable sharing of benefits from the use of biodiversity resources.

8. STRATEGIES AND TARGETS

Five key strategies with cross-cutting themes (detailed within Section 9) are proposed to support the goals and objectives of the NBSAP 2016-2025 (see figure9). These strategies and targets address the status and trends of change in biodiversity as well as gaps in the implementation of the first NBSAP described in Part I. They are also designed to address key biodiversity

issues/threats, as well as well as consider Lao PDR priorities and its commitments to the Aichi targets set by the CBD in 2010.

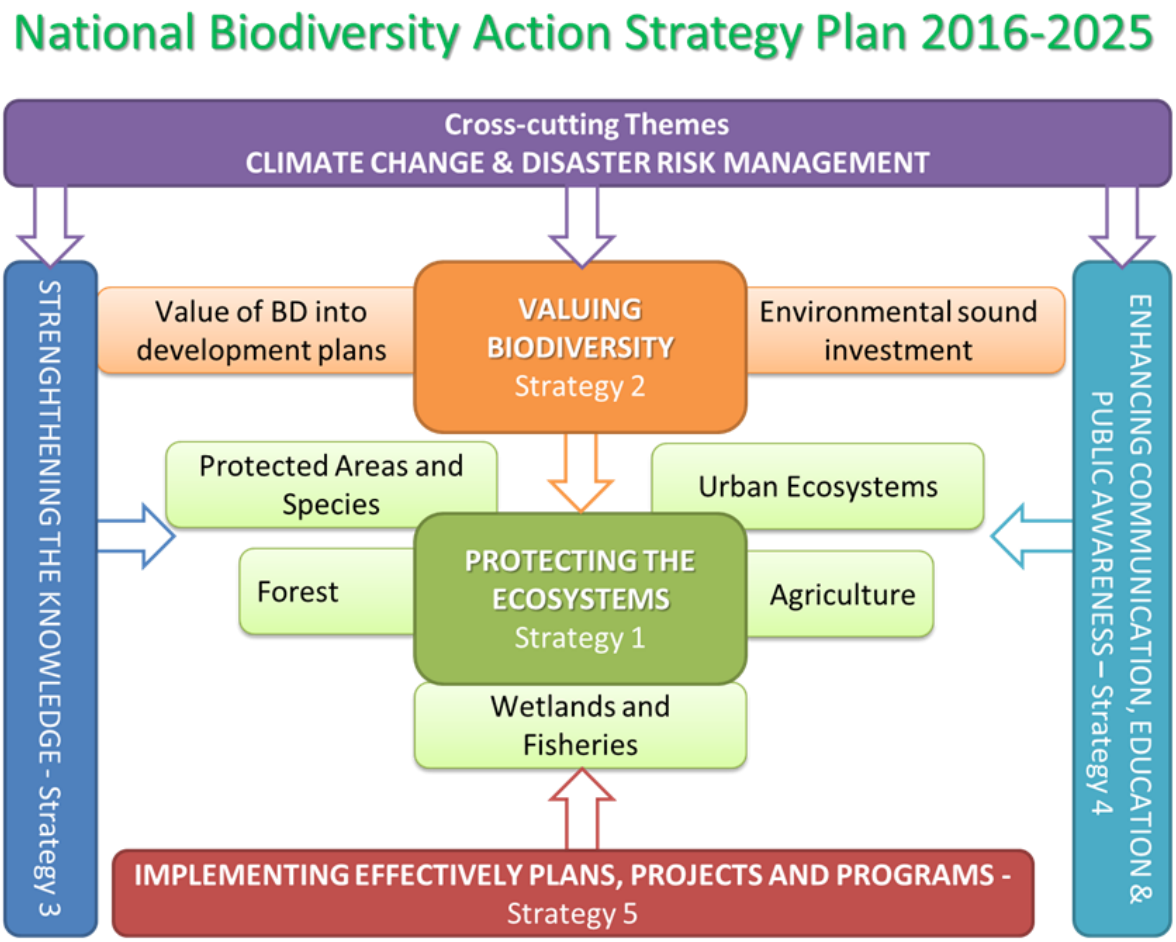


Figure 9: Five key strategies

8.1 NBSAP-Strategy 1: Protect the Country's diverse and economically important Ecosystems including the Species and Genetic Diversity.

The NBSAP aims to protect the economically important ecosystems and the species and genetic diversity within them. To do so would require addressing direct pressures on key ecosystems cited below, as well as species and genetic resources within these ecosystems. Targets will be implemented in the network of national and local protected areas as well as outside of these areas. The current reality calls for setting up clearer conservation targets, stimulating environmentally sound production and consumption patterns based on perceived benefits to stakeholders and having clearer and more realistic regulations based on participatory, science based assessments, and more effective law enforcement.

Table 16: Strategy 1 - Protect the country's diverse and economically important ecosystems.

STRATEGY 1		
Target	**Baseline**	**Outcome Indicators**
Sub Strategy 1.1 Protection of Forest Ecosystems		
Target 1.1.1 Achieve National Goal of 70% forest cover of the total national area by 2020. **Related Aichi Global Target: Target 5**	Strategy on climate change of Lao PDR 2010 says 53,000 ha of forest per year are lost. Monitoring and enforcement of forest protection rules continue to be a challenge.	60% of staff must be in compliance of protection rules by designated entities with clear accountability. Completion of forest survey, allocation and rehabilitation to achieve 70% of forests are of total area by 2020 with 35,000 ha of forest plantation and 1.5 million ha of natural grown forest;
Target 1.1.2 Sustainable commercial forest harvesting and processing operations which would increase rural employment generation are fully enforced in at least 70% of the wood industry and NTFP operations **Related Aichi Global Target: Target 7**	8 Pilots of sustainable forest management are on-going in 7 provinces (SUFORD) out of 51 forest production areas. Two sites recently received SMART wood certification. Exports of Certified NTFP (rattan) recently started. At least 69 village forestry oriented projects currently being supported by Forest oriented projects.	Increase in number of internationally certified, environmentally sound, forest businesses and enterprises. Increase in number of household beneficiaries from village forestry-oriented projects located in priority hot spots.
Sub Strategy 1.2 Protecting wetlands and fisheries ecosystems		
Target 1.2.1 At least 250 Fish Conservation and breeding sites (that include local	The PRF pilot fish breeding sites exist and demonstrate good practices (with linkages to the Convention of Migratory Species).	Improved catch per unit effort in designated pilot areas.

STRATEGY 1		
Target	**Baseline**	**Outcome Indicators**
/indigenous species) are established and are recognized /supported by stakeholders living in the watersheds where these sites belong. **Related Aichi Global Target: Target 6**	More than 300 community level fish conservation zones have been identified and/or developed in 3 northern Provinces (TABI) 4 Probarbus fish conservation zones have been established in the Mekong river between Vientiane, Xayaboury and Luangprabang provinces (FISHBIO-CEPF IUCN). There are also concurrent efforts for establishing watershed management programs with stakeholder participation in at least 2 watersheds.	
Target 1.2.2 National wetlands strategy in place while management plans with substantive funding are implemented in at least 12 important wetlands sites. **Related Aichi Global Target: Target 11**	The First Wetland Inventory was made in 1993 and since then not many follow-up activities have been carried out. Two RAMSAR sites have been established. There are unclear jurisdiction on wetland areas outside of RAMSAR sites.	Rural development plans refer to the National Wetlands Strategy in formulating fisheries programs in at least 12 wetland sites.
Target 1.2.3 Protect water quality and quantity in 10 river basins to meet water quality and quantity standards and to ensure minimum negative impact.	With the pressure of rapid demographic growth, economic development and urbanization, water quality is increasingly likely to deteriorate. MRCS has supported the monitoring and laboratory work of the Water Quality Lab (WQL) in the Department of Environment. Samples have been taken from a network of 19 monitoring stations throughout Lao PDR and 18 parameters have been	Completion of development and implementation of mechanisms and integrated water resources management plans (IWRMP) in the 10 priority river basins (Nam Ngum, Nam Theun-Nam Kading, Xe Bang Fai, Xe Bang Hieng, Nam Ou, Sekong, Nam Ngiep, Nam

STRATEGY 1		
Target	**Baseline**	**Outcome Indicators**
	analysed	Sam, XE Don, Nam Ma) and other potential sub-river basins

STRATEGY 1		
Target	**Baseline**	**Outcome Indicators**
Sub Strategy 1.3 Protecting Agricultural Ecosystems		
Target 1.3.1 Agricultural support services (technical assistance, seeds, crop protection, credit, market support, animal husbandry, fisheries, etc.) are provided to pioneering farming communities that apply sustainable production measures. **Related Aichi Global Target: Target 13**	Various research and development (R&D) programs are generating sustainable, agro-biodiversity based agriculture practices at the farm level (e.g. use of indigenous cultivars crop rotation, use of bio fertilsiers and bio -crop protection, minimum tillage methods, etc) and landscape levels (forest and land use planning promoting ABD in multifunctional landscapes, agro-ecosystems planning). Ex situ conservation initiatives exist for rice, rattan and a few other species. The National Agricultural Biodiversity Programme (NABP) of 2005 containing agro-ecological approaches as linked to the ITPGRFA .	Increase in number of farmers applying selected sustainable agriculture measures (local varieties, crop diversification, soil health, conservation agriculture, IPM, etc.).
Target 1.3.2 The protection and sustainable use of biodiversity rich agricultural landscapes demonstrated in at least 1 site	There is declining land area for agriculture due to non-agricultural land use. Pilot projects are demonstrating the value of biodiversity rich agricultural landscapes	Important biodiversity rich agricultural landscapes are protected from non-agricultural land use in land

STRATEGY 1		
Target	**Baseline**	**Outcome Indicators**
per province. **Related Aichi Global Target: Target 8**	through agricultural landscape level planning and interventions.	use plans of selected provincial and district governments.
Target 1.3.3 Agriculture and forestry sector has reduced the use of hazardous agro-chemicals.	There is evidence of banned pesticides and herbicides being imported in to Lao PDR (World Bank & STEA, Lao PDR Environment Monitor, 2005)	Agriculture and forestry sector has reduced the use of hazardous chemicals by 5% (2020) and 20% (2025)
Sub Strategy 1.4 Urban Ecosystems		
Target 1.4.1 Local development plans in at least 8 provincial capitals including protection and enhancement of the watersheds and ecosystems (forests, wetlands, rivers etc.) that protect them. **Related Aichi Global Target: Target 14**	Urbanization plans developed for 147 locations that do not adequately factor environmental management and biodiversity protection. Environmentally oriented plans are planned to selected cities as part of agreement with ASEAN member countries.	Protection of biodiversity niches in urban areas.
Target 1.4.2 The waste generation in the municipal areas across the country are reduced.	Government of Lao PDR increasingly realize the need to deal with the growing problems created by solid waste before they become overwhelming Five major cities have some form of Solid Waste (SW) collection system in Lao PDR including Vientiane. Among those, Vientiane has the highest rate of waste generation at 4.92 kilograms/week/capita followed by Luangprabang at 3.88	The waste generation in the municipal areas across the country are reduced by 10% (2020) and 30% (2025)

STRATEGY 1		
Target	**Baseline**	**Outcome Indicators**
	(Norwegian Agency for Development Cooperation 1998).	
Sub Strategy 1.5 Protected Areas Management and Species Conservation		
Target 1.5.1 Management plans and substantive funding are in place to enforce BD protection in at least 10 NPAs (from existing 2), 5 PPAs, 3 protection forests and 2 corridors. **Related Aichi Global Target: Target 20**	There are 24 National Protected Areas (corresponding to IUCN categories) established. Ten protected areas have management plans and 2 have been demarcated. Implementation of management plans is a key issue. A small portion of staff undertook local and international training but, overall, staff capacity is a challenge. Stakeholder communities participate in protected areas activities as co-operators and field implementers.	Verified reports indicate reduced occurrence of forest fires, deforestation, destruction of natural forests and illegal extraction.
Target 1.5.2 Geographically contiguous village forestry sites are recognized /promoted to form an organic part of 2 BD corridors that would link critical fragmented habitats together. **Related Aichi Global Target: Target 11**	Two candidate areas for biodiversity corridors have been identified and are currently under local authority jurisdiction to be covered by the GMS project.	Reduced frequency of trading of flagship wildlife species in designated biodiversity corridor areas. Larger wildlife populations and greater movement and dispersal between the 2 NPAs.
Target 1.5.3 The extinction of at least 5 priority species (to be	LAO RED list indicates that 95 wildlife and aquatic species under Category 1, but the	Verified reports indicate reduced extraction and trade

STRATEGY 1		
Target	**Baseline**	**Outcome Indicators**
determined from the Lao Red lists) are effectively prevented through better law enforcement and in situ and ex situ conservation. **Related Aichi Global Target: Target 12**	monitoring capacity is a concern. The Aquatic and Wildlife law was passed in 2007, while other sectorial laws (e.g. Forest, Fisheries) have provisions for species conservation. Protection and Recovery Initial plans for at least 8 flagship species are on-going partly with international support. The GoL follows CITES guidelines for customs and participates in the ASEAN – WEN program.	of flagship wildlife species. The creation of a national wildlife rehabilitation centre for confiscated wildlife. Funds for national botanical gardens, zoos, captive breeding programs. Improved law enforcement through the development of Lao-WEN and enhanced NPA patrolling systems.
Target 1.5.4 National Medicinal Plants Preservation and management plans are established, funded and implemented to support primary health care programs in at least one site per province. **Related Aichi Global Target: Target 13**	Local knowledge on herbal medicine exists but are not adequately documented nor substantially used to support primary health care components of poverty reduction programs. The Traditional Medicine Research Institute and various partners are conducting inventories. Medicinal plant conservation areas have been set up in various forests throughout the country.	Priority medicinal plants are promoted as part of primary health care program in designated pilot areas.
Target 1.5.5 Improved regulations are enforced and capacities improved to protect plants (including rice) and animals in priority areas from alien species invasion. **Related Aichi Global**	The GoL agencies work on the basis of a National Bio Safety Framework, whose main activities have been on initial monitoring and awareness rising. A draft Bio Safety Law awaits approval. The new Livestock and Veterinary Law reflects aspects of the Cartagena protocol. Manpower capacity is a challenge.	Readiness programs involving all key stakeholders are in place.

STRATEGY 1		
Target	**Baseline**	**Outcome Indicators**
Target: Target 9		

8.2 NBSAP-STRATEGY 2: Integrate the Value of Biodiversity to Socio-Economic Decision Making To Ensure Sustainable Use and Funding.

In the developing country context, biodiversity resources need to be used so that there is lasting incentive to protect them. To do this prudently, there is a need to understand the true socio economic values of biodiversity and determine how and under what conditions biodiversity can be utilized for both short and long term socio economic gains.

Table 17: Strategy 2 - Integrate the Value of Biodiversity to Socio-Economic Decision Making To Ensure Sustainable Use and Funding.

STRATEGY 2		
Target	**Baseline**	**Outcome Indicators**
SUB STRATEGY 2.1 REFLECT THE REAL VAULE OF BD IN DEVELOPMENT PLANS		
Target 2.1.1 Socio economic contributions of biodiversity resources are considered in planning investments for poverty reduction programs particularly in targeted high poverty incidence areas designated by the GoL Poverty Reduction Program. **Related Aichi Global Target: Target 2**	Poverty reduction programs of previous years incorporated village based natural resources management as poverty reduction intervention.	Location specific indicators e.g. higher returns from value added NTFP sales; preservation of traditional weaving skills; reduction of lean months; and reduced incidence of simple ailments, etc.
Target 2.1.2 Mainstream the Integrated Spatial Planning (ISP) in the development of cities and rural areas for sustainable utilization .	Environmental Protection Law (Revised Version) approve in the year 2012: Amended Environmental Protection Law includes a provision on	The National Master Land Use Plan and national, provincial and district Integrated Spatial Plans (ISP) for sustainable utilization of land in combination with

STRATEGY 2		
Target	**Baseline**	**Outcome Indicators**
	Integrated Spatial Planning Article 18*: integrated Spatial Planning* To ensure environmental protection, Integrated Spatial Planning (ISP) shall: • Identify sustainability of natural resource use plans and land use plans in accordance to the national land use master plan; •Manage natural resources and environment in areas, particularly residential, agricultural and future industrial sites or locations, and large scale investments; and •Develop standards and rules on demarcation and zoning of areas as mentioned in the above paragraph 2.	conservation of valuable ecosystems and cultural heritage are developed
SUB STRATEGY 2.2. GUIDING ENVIRONMENTALY SOUND INVESTMENTS		
Target 2.2.1 National Investment incentive policies and enforcement measures in at least 10 provinces and in at least 3 sectors are strengthened to encourage the private sector to plan and implement business operations	Technical studies conducted by NERI in collaboration with IUCN and UNDP indicate mixed results from liberalized investments in agricultural land development and recommends building capacity at provincial	Adjustments to business plans (e.g. siting) based on ESIA recommendations.

STRATEGY 2		
Target	**Baseline**	**Outcome Indicators**
in an environmentally sound manner. **Related Aichi Global Target: Target 3**	level to review business proposals and monitor compliance to environmental safeguards including biodiversity protection. Selected provinces (Savanakhet, Saravan) are now upgrading their respective capacities for business proposal reviews. The MONRE is presently revising the current EIA regulations to address key process gaps and financing so that the value of biodiversity is also considered as part of the EIA processes and requirements. Local planning guidelines are being disseminated to local authorities.	
Target 2.2.2. Corporate Social Responsibility (CSR) and BD concerns are incorporated in the internal code of conduct (or agreed standard business practices) among companies in at least 5 key industries (energy, agriculture, forestry, tourism and chemical). **Related Aichi Global Target: Target 4**	The Lao National Chamber of Commerce in cooperation with development partners is supporting the promotion of green rattan products. The Tourism business sector cooperates with the (former LNTA) to promote awareness building on sustainable tourism both among tourist operators as well as tourists.	Increased incidence of improved business practices that do not negatively affect biodiversity.

STRATEGY 2		
Target	**Baseline**	**Outcome Indicators**
	MAF has created working groups (government and private sector) to discuss issues and plans. This can be a potential starting point for guiding Corporate Social Responsibility (CSR).	

8.3 NBSAP-STRATEGY STRATEGY 3: STRENGTHEN THE KNOWLEDGE BASE FOR STRATEGIC DECISION MAKING

Given the urgency of protecting rapidly declining resources, there is a need to effectively preserve and adapt existing useful knowledge as well as generate new knowledge that can guide public investments in biodiversity protection. Existing global knowledge can help accelerate knowledge that needs to be managed well.

Table 18: Strategy 3 - Strengthen the knowledge base for strategic decision making.

STRATEGY 3		
Target	**Baseline**	**Outcome Indicators**
Target 3.1.1 Relevant Traditional Knowledge is conserved, and utilized to support biodiversity promotion in at least one site per province, through proactive programs supported by the law on Intellectual property rights. **Related Aichi Global Target: Target 18**	At least 6 government, IDA and NGO projects provide documentation of traditional knowledge to support sustainable agriculture, protected area management, public health concerns. An existing IPR law is not explicit on the aspects of traditional knowledge but it can be interpreted to favour Traditional Knowledge through specific implementing guidelines.	Relevant Traditional Knowledge is incorporated in information campaigns of specific development projects in designated target sites.
Target 3.1.2 Lao legislation is enacted to reflect requirements under the Nagoya Protocol on Access and Benefit Sharing (ABS) from the use of genetic resources is in place and implementation is piloted in at least 3 selected areas. **Related Aichi Global Target: Target 16**	No policy currently exists for Access and Benefit Sharing (ABS) to support the implementation of the Nagoya Protocol on ABS. CBD is still formulating more detailed guidelines to guide countries. Current policy however provides for some form of compensation for environmental services. The Lao (NAFRI) Country Report on State of Plant Genetic Resources flags the importance of access to plant genetic resources and sharing of benefits arising	Both government and communities receive monetary and non-monetary compensation in at least 3 cases supported by ABS policy.

STRATEGY 3		
Target	**Baseline**	**Outcome Indicators**
	out of their use, and farmer rights.	
Target 3.1.3 Expansion of the current clearing house mechanism to provide for regular research based updates on the state of biodiversity trends, good practices and relevant technologies (nationally and globally) for the benefit of national and local decision makers, civil society, business, and the country teams for other conventions. **Related Aichi Global Target: Target 19**	An interim clearing house mechanism is currently maintained by the Lao CBD Secretariat and the ASEAN Centre for Biodiversity (ACB). Smaller scale data bases exist under various agency initiatives e.g. NAFRI data base plant genetic resources. Access to information and regular sharing of existing information among stakeholders is lacking.	Increase in the substantive use of information derived from the clearing house and other data bases.
Target 3.1.4 International/regional collaboration is optimized to accelerate the build-up and use of knowledge on the nature of biodiversity resources and relevant good practices. **Related Aichi Global Target: Target 19**	Country teams currently fulfil reporting requirements to the CBD and related conventions (CITES, RAMSAR, etc.) and participate in its planning and sharing events. Government websites hosting databases on natural resource and environmental information have been redesigned to enable easier data management.	High quality knowledge products useful for NBSAP implementation are derived from corporative agreements as well as synergistic implementation of various biodiversity related conventions through actions and reporting.

8.4 NBSAP-STRATEGY 4.: Inspire and Enable actions through better Communication, Education and Public awareness.

The national civil service and concerned citizens need to be inspired and enabled so they can be mobilized effectively to support NBSAP implementation. A basic input would be clear flow of science based information to support decision making, planning and multi – sectorial action. Information should also reach all key stakeholders. Investments need to be made in the youth to assure the long term human resource needs of biodiversity.

Table 19: Strategy 4 - Inspire and Enable actions through better Communication, Education and Public awareness.

STRATEGY 4		
Target	**Baseline**	**Outcome Indicators**
Target 4.1.1 Key civil service personnel from key agencies demonstrate improved knowledge and skills in biodiversity planning and implementation. **Related Aichi Global Target: Target 1**	Results of the National Capacity Self-Assessment (NCSA) indicate relatively low self-assessment scores for biodiversity related knowledge and skills. Selected Agency staff has attended international graduate studies, as well as key international and national conferences and conventions. However, current efforts are driven by needs of projects and not based on a strategic capacity development plan.	Staff performance assessments starting on the 3rd year reflect the improved quality in terms of program and project plans, and reports are prepared by civil service personnel.
Target 4.1.2 Increased public awareness on the value of biodiversity among the general public and targeted stakeholder groups including those in 24NPAs. **Related Aichi Global Target: Target 1**	Agencies and development partners are using various forms especially media to disseminate message to the general public especially during key events (e.g. biodiversity day etc.). Extension materials, resource books and tool kits on sustainable agriculture and NRM are made available to extension workers. The volume of extension materials is not sufficient to meet needs at local levels.	Positive feedback is provided by representative groups/individuals in response to surveys on effectiveness of materials disseminated.

STRATEGY 4		
Target	**Baseline**	**Outcome Indicators**
	Current communication efforts may not be adequately reaching the private sector. The media itself would need to be targeted. Efforts are not adequately supported by an analysis of information needs by different audience.	
Target 4.1.3 The value of biodiversity and its sustainable use is incorporated in formal and informal education programs. **Related Aichi Global Target: Target 1**	A master's degree course has been developed for NUoL, but needs to be updated. Undergraduate curriculum for NTFP was also revised. Environmental education criteria for primary and secondary schools has been developed (by former WREA) and presently being tested. Agrobiodiversity issues are currently piloted in the curriculum of primary, secondary schools supported TABI and ABP projects.	Positive knowledge gain demonstrated by pupils and students compared to baseline knowledge conducted at the start of a course on biodiversity.

8.5 NBSAP-STRATEGY 5: Enable effective preparation and implementation of plans and programs.

An updated NBSAP, based on COP 10, will provide the roadmap to implement a biodiversity conservation and sustainable use program. To be truly effective, the NBSAP needs to be broken down into sector specific Programs of Work that are linked to Global Thematic Programs of Work (POW). By breaking this down into Programs of Work, more opportunities are provided for voluntary support by key stakeholders. At the same time, an integrated approach to financing needs to be pursued that optimizes the benefits from internal , external and innovative sources of financing.

Table 20: Strategy 5 - Enable Effective Preparation and Implementation of Plans and Programs.

STRATEGY 5		
Target	**Baseline**	**Outcome Indicators**
Target 5.1.1 Sustainable financial mechanism for timely obtaining and transparent utilization is developed and implemented	Based on OECD (2013), there are six mechanisms that can be used to scale-up financing for biodiversity conservation and sustainable use and to help meet the 2011-20 Aichi Biodiversity Targets. The mechanisms are environmental fiscal reform, payments for ecosystem services, biodiversity offsets, green markets, biodiversity in climate change funding, and biodiversity in international development finance (OECD, 2013).	The funding for biodiversity conservation is more sufficient and consistent.
Target 5.1.2 Strengthened institutional mechanisms to increase participation of biodiversity stakeholders in land use decision making are in place in at least 3 key economic sectors (energy, agriculture and forestry), and locally in at least 3 provinces. **Related Aichi Global Target: Target 4**	Agencies pursue their own efforts to consult stakeholders in decision making. The level of participation in the planning process varies from agency to agency. Stakeholders at the protected area level are involved in protected area protection at a much lower cost to government.	Activity reports indicate stakeholder groups participate actively in national and local government level and planning is based on clear guidelines for participation process.
Target 5.1.3 Integrated strategy for tapping multiple funding sources (internal, external and innovative) in place so that funding windows for biodiversity and	Lack of prioritization and proposal preparation capacity has limited access to various funding sources. There is over reliance on external sources of funding.	The amount of pipeline projects under discussion with other agencies and development projects increased by at least 30% in 2020 (vs. 2016 figures).

STRATEGY 5		
Target	**Baseline**	**Outcome Indicators**
agrobiodiversity increase by at least 30% by 2020. **Related Aichi Global Target: Target 20**	The GoL set up various funds such as the Forest Development and Rehabilitation Fund and the Environmental Protection Fund. The UNDP has also facilitating the GEF small grants. The concepts of REDD+ and PES are being piloted.	Development of domestic sustainable financing schemes such as “Payments for Ecosystem Services”.

9. CROSS CUTTING THEMES

The linkages between biodiversity and Climate Change & Disaster Risk Management (CC & DRM) are at two main levels. The first is how climate change or a given natural disaster affects biodiversity (i.e the ability of natural and semi-natural system to respond to climate change or natural disaster) and the second is the adaptation and disaster control services that a given natural or semi-natural system may provide.

It should be noted that these two (i) adapting ecosystems to climate change and disaster and (ii) using ecosystems as a form of adaptation and/or disaster control are distinct but sometimes contrary. The implementation of an ecosystem based-adaptation may not necessarily provide the best adaptation for the ecosystem.

9.1 Biodiversity response to climate change and the need to adapt ecosystem to climate change

Observed changes in climate have already affected **biodiversity** at the species and ecosystem levels, including:

1. by changing the timing of key life events,

   Productivity and fertility of NTFPs may be affected by increased temperatures, with dry season spikes impacting flowering, fruiting, and seed dispersal; (ARCC – NTFP Adaptation)

2. changing habitat conditions, and

   On fisheries increasing water temperatures will result in greater eutrophication of aquaculture ponds and associated negative water quality effects on adjacent streams and river system

3. increasing vulnerability to pests and natural disasters.

Climate change will also have a negative impact on the ability of biodiversity to deliver ecosystem services (provisioning, regulating and supporting services).

9.2 Biodiversity, and particularly ecosystems, as an approach to adaptation and disaster risk management

The conservation and restoration of "natural infrastructure" has already been identified as an important climate change adaptation and hazard management solution such as:

- Floods: Wetlands conservation and restoration can be key on a flood management strategy, and such action can also provide substantial benefits in terms of fisheries, increased resilience and an improved aesthetic and cultural environment.
- Drought: Maintaining the genetic diversity of indigenous livestock and crops and through the conservation of forests which act as micro-climates may figure into drought management strategies.

9.1 Mainstreaming climate change into the NBSAP

Adapting natural systems to climate change and using natural systems to adapt to climate change are to be considered into the NBSAP. However, the approach to consider those aspects into the NBSAP has been discussed during the NBSAP consultation process and two options have been identified: (i) develop a NBSAP Strategy 6 on CC & DRM, and (ii) to prepare a section on stressing out the fact that climate change is to be mainstreamed into the five NBSAP strategies.

The option two has been selected considering climate change a cross cutting topic to be mainstreamed the 5 strategies as illustrated and developed here below:

<u>CC & DRM into "Strategy 1: Protecting Ecosystems":</u>

- Integrate climate change adaptation measures into any action proposed: Intact ecosystems, with high levels of biodiversity, are expected to be more capable of adapting to climate change than systems that are fragmented or have a reduced level of diversity. Example of measure :
    - Identifying and protecting climate refuges;
    - Increasing connectivity of habitats;
    - Reducing other threats that may be exacerbated by climate change;
    - Designing resilient networks of conservation areas; and

- Habitat restoration

CC & DRM into “Strategy 2: Valuing Biodiversity”:

- Integrating of climate change adaptation, in a coherent manner, into relevant new and existing biodiversity policies programs and plan, such as the National Adaptation Plans (NAPSs)
- Valuing the services provided by ecosystems as a solution to climate change adaptation

CC & DRM into “Strategy 3: Knowledge Base”:

- Understanding observed climate change impacts on biodiversity and ecosystem services
    - monitoring climate change impacts on species diversity, on ecosystem diversity, etc.
    - assessing the adaptive capacity of species and ecosystems
- Assessing the Impacts of Climate Change on Lao’s Biodiversity and Livelihood

CC & DRM into “Strategy 4: Communication, Education and Awareness”:

- To integrate climate change into the awareness, education and communication campaign in biodiversity and explain the two levels presented above

CC & DRM into “Strategy 5: Implementing Effective Plans, Projects and Programs”:

- To reinforce the understanding of mainstreaming climate change into projects and programs
- To mobilize climate change finance on the area of biodiversity, for instance under the GCF eligible adaptation results areas: Ecosystems and ecosystem-based adaptation (as supported by the UNFCCC and UNCCD)

PART III. NATIONAL ACTION PLAN

10. NATIONAL ACTIONS TO IMPLEMENT THE STRATEGIES AND TARGETS

This NBSAP has identified 32 targets to achieve the goals, objectives, and strategies set above. Each target in turn is supported by time bound actions. There are 69 proposed actions.

10.1 Type of Actions

The type of actions and the intensity of that action across the 5 NBSAP strategies are indicated in Table 26 below.

Table 21: Type of Actions under the NBSAP.

Type of Actions	National Biodiversity Strategy				
	S1	S-2	S3	S4	S5
Assessment and revision of specific policy instrument					
Preparation or revision of a sector program , including systems and procedures					
Preparation /revision of area based plans (protected areas, local environment plans etc.)					
Conduct bio technical survey /research /establish a knowledge base					
Design and Conduct training program					
Establish a sharing network, establish cooperative agreement					
Preparation of educational and communication materials					
Coordination of program tasks					
Fund generation					

Legend: Strategy 1: Protect ecosystems; Strategy 2: Integrate in decisions; Strategy3: Knowledge base; Strategy 4: Communication; Strategy5: NBSAP implementation. Dark shade refers to higher frequency of action.

10.2 Summary of Actions and their prioritization

A summary of action under each target is described in Tables 28 to 32.

Table 22: Classification of Actions.

Priority 1 Actions	Priority 2 Actions
• Usually actions that are essential for other actions to follow • Usually involve review of specific policy instruments and amendment of procedures as incentive to stakeholders • Need not depend on huge external resources to start • Will be done in the first two years • Need immediate intervention	• Usually depend on the start of Priority 1 actions • Usually involve major investment and require sufficient planning time • Involve some human capacity building before start

Table 23: Strategy 1.0 – Summary of actions

Action Number	List of Actions	Priority	Period		
SUB STRATEGY 1.1 PROTECTION OF FOREST ECOSYSTEMS			Y1-2	Y3-5	Y6-10
Target 1.1.1: Achieve National Goal of 70% forest cover of the total national area by 2020.					
Action 1.1.1 (a)	Continue participatory review and clarification of current forest classification systems and relevant regulations on primary and secondary logging by both communities and private sector. **Implementing Agencies:** DoF, DoFI (MAF), DFRM, and Land Development and Planning Department (MoNRE).	1			
Action 1.1.1 (b)	Improvement of compliance monitoring and facilitation of private sector contribution to forest resources management and rehabilitation of damaged ecosystems. **Implementing Agencies:** DoF, DoFI (MAF) and DFRM (MoNRE).	2			
Action 1.1.1 (c)	Rehabilitation of at least 50% of logged and degraded forests through low cost forest regeneration methods (e.g. Assisted Natural Regeneration, agroforestry, small holder tree farms, etc.) **Implementing Agencies:** DoF, NAFRI (MAF) and DFRM (MoNRE), PoNRE, PAFO, as well as business/private sector and local communities.	2			
Action 1.1.1 (d)	Protection program for valuable forest ecosystems such as: Hing home forests (Fokinia chinensis), Long Leng forests (Cunninghamia obutusa), Mai Dou Lai forests (Pterocarpus/*Dalbergia*) and Mai Khangoung forests (Dalbergia cochinchinensis). **Implementing Agencies:** DoF, NAFRI (MAF), DFRM (MoNRE).	2			

Target 1.1.2: Sustainable commercial forest harvesting and processing operations which would increase rural employment generation are fully enforced in at least 70% of the wood industry and NTFP operations					
Action 1.1.2 (a)	Manage for sustainable forest production to cover at least 80% of production forests. **Implementing Agency:** DoF (MAF).	2			
Action 1.1.2 (b)	Update the Forest Strategy 2020 to incorporate experience and good practices leading to forest certification. **Implementing Agencies:** DoF, DoFI (MAF), DFRM (MoNRE)**,** Ministry of Planning and Investment.	1			
Action 1.1.2 (c)	Review rural employment generation experience of NRM based enterprises and adoption of enhancement measures. **Implementing Agencies:** DoF, Department of Agricultural (DoA), Department of Agricultural Extension and Cooperatives, Department of Agricultural Land Management and Development (MAF), DFRM, Department of water resources (MoNRE), Rural Development and Poverty Reduction Program, and The Poverty Reduction Fund (Prime Minister Office).	1			
Action 1.1.2 (d)	Strengthening of organizations dealing with shifting cultivation stabilization, and village forestry allowing for communities to sell wood of production forest. **Implementing Agencies:** DoF, DoA, Department of Agricultural Extension and Cooperatives (MAF), DFRM, Department of Water Resources (MoNRE), Rural Development and Poverty Reduction Program, The Poverty Reduction Fund (Prime Minister Office).	2			
SUB STRATEGY 1.2 WETLANDS AND FISHERIES ECOSYSTEMS					
Target 1.2.1: At least 250 Fish Conservation and breeding sites (that include local /indigenous species) are established and are recognized /supported by					

stakeholder*s* living in the watersheds where these sites belong.					
Action 1.2.1 (a)	Establishment and monitoring of Fish Conservation Zones (that include local/ indigenous species). **Implementing Agencies:** Department of Livestock and Fisheries, LaRReC (MAF), Rural Development and Poverty Reduction Program (Prime minister's Office), Department of Environment Quality Promotion (MoNRE), Lao National Mekong Committee and Water Resources Department (MoNRE), MRC.	2			
Action 1.2.1 (b)	Establishment and monitoring of watershed programs that incorporate systems wide support of fish breeding sites. **Implementing Agencies:** Water Resources Department (MoNRE), Department of Livestock and Fisheries (MAF), Department of Environment Quality Promotion (MoNRE), and Lao National Mekong Committee, MRC.	1			
Target 1.2.2: National wetlands strategy in place while management plans with substantive funding are implemented in at least 12 important wetlands sites					
Action 1.2.2 (a)	Formulate national wetlands inventory and strategy. **Implementing Agencies:** Water Resources Department, Department of Land Development and Planning (MoNRE), Department of Environment Quality Promotion (MoNRE), Lao National Mekong Committee, Livestock and Fisheries Department, Department of Agricultural Land Development and Planning (MAF), LNMCS, DEQP, IUCN Lao PDR.	1			
Action 1.2.2 (b)	Development of implementing guidelines for the Fishery Law that consider biodiversity concerns **Implementing Agencies:** Livestock and Fisheries Department and LaRREC (MAF).	2			

Action 1.2.2 (c)	Facilitation of cooperative agreements with neighbouring countries to more effectively conserves and manages fish resources in Mekong and other rivers. **Implementing Agencies:** Livestock and Fisheries Department, LaRREC (MAF), International Cooperation Department (MPI), and Ministry of Foreign Affairs.	2			
Target 1.2.3: Protect water quality and quantity in 10 river basins to meet water quality and quantity standards and to ensure minimum negative impact					
Action 1.2.3 (a)	Establish River Basin Committees for Integrated Water Resources Management (IWRM) for the 10 priority river basins (Nam Ngum, Nam Theun-Nam Kading, Xe Bang Fai, Xe Bang Hieng, Nam Ou, Sekong, Nam Ngiep, Nam Sam, XE Don, Nam Ma) and other potential river basins **Implementing Agencies:** MoNRE, MRC	1			
Action 1.2.3 (b)	Develop and implement IWRM Plans in the 10 priority river basins (Nam Ngum, Nam Theun-Nam Kading, Xe Bang Fai, Xe Bang Hieng, Nam Ou, Sekong, Nam Ngiep, Nam Sam, XE Don, Nam Ma) and other potential river basins **Implementing Agencies:** MoNRE, MRC, Private Sector	2			
Action 1.2.3 (c)	Mainstreaming IWRM Plans into ISPs and to ensure well-coordinated and sustainable water resources protection, management and development	2			
SUB STRATEGY 1.3 PROTECTING AGRICULTURAL ECOSYSTEMS					
Target 1.3.1: Agricultural support services (technical assistance, seeds, crop protection, credit, market support, animal husbandry, fisheries, etc.) are provided to pioneering farming communities that apply sustainable production measures.					
Action 1.3.1 (a)	Provision of expanded support services for sustainable agriculture to conserve BD, and promote agricultural biodiversity as a driver of rural development and a key component of resilience to climate	2			

	change. **Implementing Agencies:** DoA, Department of Livestock and Fisheries and Department of Agricultural Extension and Cooperatives and NAFRI (MAF), including their Provincial and District offices.				
Action 1.3.1 (b)	Accelerate the conservation of wild rice varieties and the registration of endemic and recently discovered plant species of agricultural and medicinal value. **Implementing Agencies:** NAFRI, DoA (MAF), ITM (MOH), and Department of Property Rights (Ministry of Science and Technology).	1			
Action 1.3.1 (c)	Market studies and value chain analysis establishing commercial viability of and realistic options for local varieties and breeds. **Implementing Agencies:** DoA, Livestock and Fisheries Department, Department of Agricultural Extension and Cooperatives, NAFRI (MAF), External Trading Department (Ministry of Trading and Commerce), and Lao Chamber of Commerce and Industry.	2			
Target 1.3.2: The protection and sustainable use of biodiversity rich agricultural landscapes demonstrated in at least 1 site per province.					
Action 1.3.2	The conduct of participatory forest and land use planning, leading to approved (by GoL) and implemented (by villagers/farmers) landscape management based on multi-functional agro-biodiversity and agro-ecosystem. **Implementing Agencies:** DoA, DoPC, DALAM, DoF, NAFRI (MAF) and Department of. Land Development and Planning (MoNRE).	2			
Target 1.3.3: Agriculture and forestry sector has reduced the use of hazardous agro-chemicals.					

Action 1.3.3 (a)	Promote IPM (Integrated Pest Management) **Implementing Agencies:** MAF and MoNRE.	2			
Action 1.3.3 (b)	Regulate the use of agro-chemicals **Implementing Agencies: DoA, (**MAF) and MoNRE.	1			
SUB STRATEGY 1.4 URBAN ECOSYSTEMS					
Target 1.4.1: Local development plans in at least 8 provincial capitals including protection and enhancement of the watersheds and ecosystems (forests, wetlands, rivers etc.) that protect them.					
Action 1.4.1 (a)	Facilitation of urban environment planning in selected provincial capitals to protect biodiversity rich ecosystems that serve urban areas. **Implementing Agencies:** Housing and Urban Planning Department (Ministry of Public Work and Transportation) and Department. of Land Planning and Development (MoNRE).	1			
Action 1.4.1 (b)	Provision of training and advice on urban and industrial waste pollution prevention measures, especially on waterways /wetlands. **Implementing Agencies:** Department of Environmental quality promotion and Department of Pollution Control (MoNRE).	2			
Target 1.4.2: The waste generation in the municipal areas across the country are reduced					

Action 1.4.2 (a)	Develop and operate a centralized environmental pollution database including collection of data and information covering solid waste, hazardous material, and soil pollution. **Implementing Agencies:** Department of Environmental Quality Promotion and Department of Pollution Control (MoNRE)	2			
Action 1.4.2 (b)	Develop and implement awareness rising programs for 1) behaviour change from traditional waste handling (burn, dump and throw away) to proper waste handling (source separation and storage) and 2) waste reduction through practising 3 R's concept (Reduce, Reuse, and Recycle in Provincial capitals and larger towns in 18 provinces **Implementing Agencies:** Department of Environmental Quality Promotion and Department of Pollution Control (MoNRE)	1			
SUB STRATEGY 1.5 PROTECTED AREAS MANAGEMENT AND SPECIES CONSERVATION					
Target 1.5.1: Management plans and substantive funding are in place to enforce BD protection in at least 10 NPAs (from existing 2), 5 PPAs, 3 protection forests and 2 corridors.					
Action 1.5.1 (a)	Participatory preparation and improvement of the PA management plans and protection forest management and corridor management plans. **Implementing Agency**: DFRM (MoNRE), ICBF project.	1			
Action 1.5.1 (b)	Assessment and program development for conserving Dry Dipterocarp Forests. **Implementing Agencies:** DoF, NAFRI (MAF), and Department Land Planning and Development	2			

	(MoNRE).				
Action 1.5.1 (c)	PA Staff capacity Strengthening within 70% of Protected Areas. **Implementing Agency:** DFRM, (MoNRE).				
Target 1.5.2: Geographically contiguous village forestry sites are recognized /promoted to form an organic part of 2 BD corridors that would link critical fragmented habitats together.					
Action 1.5.2	Development of geographic networks of at least 69 village forestry sites as part of BD corridor protection and sustainable use system. **Implementing Agencies:** DFRM, Department of Land Planning and Development (MoNRE), and DoF (MAF).	1			
Target 1.5.3: The extinction of at least 5 priority species (to be determined from the Lao Red lists) are effectively prevented through better law enforcement and in situ and ex situ conservation.					
Action 1.5.3 (a)	Updating of the RED list. **Implementing Agencies:** DFRM (MoNRE) DoA, NAFRI, DoF (MAF)**,** Biological and Ecological Research Institute BEI (MoST), ITM (Ministry of Public Health), NUoL, IUCN Lao PDR, WCS, and WWF.	2			
Action 1.5.3 (b)	Capacity Development for law enforcement in support of national commitments to CITES. **Implementing Agencies:** DFRM (MoNRE), BEI (MoST) NAFRI, DoF, DoFI (MAF), Lao National Police, and Customs Department.	2			

Action 1.5.3 (c)	Implementation of priority protection measures for seed sources of indigenous tree species seed resources. **Implementing Agencies:** NAFRI, DoF (MAF).	2			
Action 1.5.3 (d)	Development of National Species Conservation Program For Key Species such as: Tiger, Giant Catfish, Irrawaddy Dolphin, Siamese Crocodile, Gibbon, Saola, Asian Elephant, Red-shanked Douc, Large-antlered Muntjac, as well as endangered flora. **Implementing Agencies:** DFRM (MoNRE), Department of Livestock and Fisheries, NAFRI (MAF), ITM (MoH), National University of Lao PDR, IUCN Lao PDR, WCS, and WWF.	1			
Target 1.5.4: National Medicinal Plants Preservation and management plans are established, funded and implemented to support primary health care programs in at least one site per province.					
Action 1.5.4 (a)	Prepare assessment, Conservation and Utilization program for medicinal plants including seed conservation. **Implementing Agencies:** DFRM (MoNRE), ITM (Ministry of Public Health), BEI (MoST), and NAFRI (MAF).	1			
Action 1.5.4 (B)	Establish at least three botanical gardens in at least three provinces. **Implementing Agencies:** BEI (Ministry of Science and technology) and private sector.				
Target 1.5.5: Improved regulations are enforced and capacities improved to protect plants (including rice) and animals in priority areas from alien species invasion.					
Action 1.5.5 (a)	Identify, characterize and prioritize the invasive alien species.	2			

	Implementing Agencies: DoA, Department of Livestock and Fisheries, LARREC, DoF, NAFRI (MAF) NUoL, BEI (MoST).				
Action 1.5.5 (b)	Capacity strengthening for Biosafety management (Risk assessment, risk management, and regulation), plant-animal quarantine and GMO detection as indicated within the Biotechnology Safety Law (2014). **Implementing Agencies:** BEI (MoST), DoA, Department of Livestock and Fisheries (MAF).	1			

Table 24: Strategy 2 - Summary of actions.

Action Number	**List of Actions**	**Priority**	**Period**		
SUB STRATEGY 2.1: REFLECT THE REAL VAULE OF BD IN DEVELOPMENT PLANS			Y1-2	Y3-5	Y6-10
Target 2.1.1: Socio economic contributions of biodiversity resources are considered in planning investments for poverty reduction programs particularly in targeted high poverty incidence areas designated by the GoL Poverty Reduction Program.					
Action 2.1.1 (a)	Documentation updating, communication of evidence and demonstration of application of biodiversity values and contributions towards poverty reduction. **Implementing Agencies:** DoA, Department of Livestock and Fisheries, LARREc, DF, NAFRI (MAF) NUoL, BEI (MoST) Rural Development and Poverty Reduction Program, Poverty Reduction Fund (Prime Minister's Office), and other projects.	1			
Target 2.1.2 Mainstream the Integrated Spatial Planning (ISP) in the development of cities and rural areas for sustainable utilization					

Action 2.1.2	Develop the national Master Land Use Plan and national, provincial and district ISP for sustainable utilization of land as basis for developing National and Provincial Social Economic Development Plans involving zoning for public open space, residential and industrial areas – in combination with conservation of valuable ecosystems **Implementing Agencies:** Investment Department (MPI) Land Development and Planning (MoNRE)	2			
SUBSTRATEGY 2.2. GUIDING ENVIRONMENTALY SOUND INVESTMENTS					
Target 2.2.1 National Investment incentive policies and enforcement measures in at least 10 provinces and in at least 3 sectors are strengthened to encourage the private sector to plan and implement business operations in an environmenta*lly sound manner.*					
Action 2.2.1 (a)	Review of effectiveness of incentives and disincentives (including economic, financial and tendril incentives) among business and community stakeholders to conserve biodiversity in the agriculture, natural resource, and other key sectors. **Implementing Agencies:** Investment Department (MPI) Land Development and Planning (MoNRE) DoA, DoF, NAFRI (MAF), Department of Tourism Development (Ministry of Information, Culture, and Tourism).	2			
Action 2.2.1 (b)	Identification and incorporation of critical biodiversity in the ESIA system and training and dissemination of information among EIA practitioners and decisions makers. **Implementing Agencies:** Environmental Quality Promotion, Department of Pollution Control, (MoNRE).	1			
Action 2.2.1 (c)	Capacity building for key provincial offices responsible for the review approval and compliance monitoring process of proposed private investments in forest lands. **Implementing Agencies:** Investment Department (MPI), Land Development and Planning Department,	2			

	Department of Environmental Quality Promotion, Dep. of Pollution Control, (MoNRE).				
Action 2.2.1 (d)	Development of recommendations on how to adequately consider biodiversity protection in comprehensive land use planning protocols. **Implementing Agencies:** Department of Environmental Quality Promotion, Dept. of Land Development and Planning (MoNRE), DoF, DoA, Department of Agricultural Land Development and Planning (MAF).	2			
Target 2.2.2 : Corporate Social Responsibility(CSR) and BD concerns are incorporated in the internal code of conduct **(or agreed standard business practices)** among companies in at least 5 key industries (energy, agriculture, forestry, tourism and chemical)					
Action 2.2.2. (a)	Investigate CSR aspects of investment promotion strategy and identify areas of responsibility for CSR promotion, enforcement, orientation and training by various government departments. **Implementing Agencies:** Planning Department (Ministry of Planning and Investment), National Economic Research Institute, Lao Chamber of Commerce.	1			
Action 2.2.2 (c)	Promote the utilization of renewable energy for reducing forest loss and the releasing of carbon dioxide and methane into atmosphere. **Implementing Agencies:** Renewable Energy Institute (Min. of Energy and Mines), DoA, Dept. of Livestock and Fisheries, DoF and NAFRI (MAF).	2			

Table 25: Strategy 3.0 - Summary of actions.

Action Number	List of Actions	Priority	Period		
			Y1-2	Y3-5	Y6-10
Target 3.1.1 : Relevant Traditional Knowledge is conserved, and utilized to support biodiversity promotion in at least one site per province, through proactive programs supported by the law on Intellectual property rights.					
Action 3.1.1	Formulation of guidelines under the Intellectual property rights law to support protection of traditional knowledge in biodiversity conservation and use. **Implementing Agencies:** Department of Property Rights, BEI (MoST) DoA, DoF, Department of Livestock and Fisheries, NAFRI (MAF), DFRM (MoNRE), ITM (Min. of Public Health) Ministry of Education and Sport, other Social Organizations.	1			
Target 3.1.2: Lao legislation is enacted to reflect requirements under the Nagoya Protocol on Access and Benefit Sharing (ABS) from the use of genetic resources is in place and implementation is piloted in at least 3 selected areas.					
Action 3.1.2	Policy and Program formulation and strengthening of ABS as stipulated under the Nagoya Protocol with participation from wide range of stakeholders. **Implementing Agencies:** BEI (MoST), DoA, Department. of Livestock and Fisheries, DoF, NAFRI (MAF) DFRM (MoNRE) and ITM (Min. of Public Health)	1			
Target 3.1.3: Expansion of the current clearing house mechanism to provide for regular research based updates on the state of BD trends, good practices and relevant technologies (nationally and globally) for the benefit of national and local decision makers, civil society business, and the country teams for other					

Action Number	List of Actions	Priority	Period		
			Y1-2	Y3-5	Y6-10
conventions.					
Action 3.1.3 (a)	Establish knowledge base of Traditional Knowledge on biodiversity conservation and sustainable use. **Implementing Agencies:** BEI (MoST), DoA, Department. of Livestock and Fisheries, DoF, NAFRI (MAF) DFRM (MoNRE) ITM (Min. of Public Health), Mass Media (Ministry of Information, Culture, and Tourism).	2			
Action 3.1.3 (b)	Developed an updated national research and development program to support biodiversity users in agriculture, medicine, tourism, among others. **Implementing Agencies:** NAFRI (MAF), NUoL, ITM (Min. of Public Health).	1			
Target 3.1.4: International/regional collaboration is optimized to accelerate the build-up and use of knowledge on the nature of biodiversity resources and relevant good practices.					
Action 3.1.4 (a)	Collaboration with other conventions to capture, analyse, set up data bases and exchange experiences with other countries: **Implementing Agencies:** NAFRI, DoF, Dept. of Livestock and Fisheries (MAF), NUoL, ITM (Min. of Public Health), DFRM, Department of Environmental Quality Promotion, Department of Pollution Control, (MoNRE), BEI (MoST).	2			
Action 3.1.4 (b)	Promotion of trans-boundary cooperation for biodiversity monitoring and action.	1			

Action Number	List of Actions	Priority	Period		
			Y1-2	Y3-5	Y6-10
	Implementing Agencies: MAF, MoNRE, MoST, Ministry of Foreign Affairs, MPI.				
Action 3.1.4 (c)	Participate in bilateral and multilateral cooperation on BD to help address high priority of NBSAP R&D needs. **Implementing Agencies:** MAF, MoNRE, MoST, Ministry of Foreign Affairs, MPI, and NUoL.	1			
Action 3.1.4 (d)	A centralized and integrated database system (IT) for efficient and effective NRE data and information management and sharing is developed. **Implementing Agencies:** MoNRE, MoST, MAF	1			
Action 3.1.4 (e)	Development of institutional mechanism and structure for enhancing synergies among the biodiversity conventions that Lao PDR is Party to for effective realization of objectives of Global Strategic Plan on Biodiversity and the SDGs **Implementing Agencies:** MoNRE, MoST, MAF	1			

Table 26: Strategy 4.0 - Summary of actions.

Action Number	List of Actions	Priority	Period

Action Number	List of Actions	Priority	Period		
			Y1-2	Y3-5	Y5-10
Target 4.1.1: Key civil service personnel from key agencies demonstrate improved knowledge and skills in biodiversity planning and implementation.					
Action 4.1.1 (a)	Establishment of Annual Environmental Recognition Awards Program for outstanding national and local civil servants as well as private citizens who have provided outstanding work on biodiversity Conservation. **Implementing Agencies:** MAF, MoNRE, MoST, Ministry of Education and Sport, Ministry of Information, Culture, and Tourism, Private Sectors and Social organizations.	2			
Action 4.1.1 (b)	Training Needs Analysis and Training Program formulation for NBSAP implementation. **Implementing Agencies:** DFRM, National CBD/NBSAP Focal Point (MoNRE).	1			
Target 4.1.2: Increased public awareness on the value of biodiversity among targeted stakeholder groups including those in 24 NPAs.					
Action 4.1.2 (a)	Implementation of communication programs in pilot sites based on analysis of stakeholder attitudes. **Implementing Agencies:** Cross-sector Action.	1			
Action 4.1.2 (b)	Increased awareness and knowledge of the mass media regarding biodiversity values, conservation and sustainable use strategies. **Implementing Agencies:** DFRM, National CBD/NBSAP Focal Point (MoNRE), Local Organizations.	1			
Target 4.1.3: The value of biodiversity and its sustainable use is incorporated in formal and informal education programs.					

Action Number	List of Actions	Priority	Period		
Action 4.1.3 (a)	Develop the curriculum for both formal and informal education for use by the Ministry of Education based on assessment of current efforts. **Implementing Agencies:** Research Institute for Education Sciences, NUoL (Ministry of Education and Sport) DFRM (MoNRE), MAF, BEI (MoST).	1			
Action 4.1.3 (b)	Development and piloting of a reflective teaching guides/training course for biodiversity education. **Implementing Agencies:** Research Institute for Education Sciences, NUoL (Ministry of Education and Sport) DFRM (MoNRE), MAF, BEI (MoST).	2			

Table 27: Strategy 5.0 - Summary of actions.

Action Number	List of Actions	Priority	Period		
			Y1-2	Y3-5	Y6-10
Target 5.1.1: Sustainable financial mechanism for timely obtaining and transparent utilization is developed and implemented.					
Action 5.1.1 (a)	Identify funding sources and permanent fund to ensure the sufficient and consistent funding **Implementing Agencies:** DFRM, National CBD/NBSAP Focal Point (MoNRE), agencies/stakeholders.	1			
Action 5.1.1 (b)	Piloting of REDD+ in areas of at least 8 biodiversity rich forest sites. **Implementing Agencies:** DFRM (MoNRE), DoF (MAF), GIZ, SNV, WCS.	1			

Action Number	List of Actions	Priority	Period		
Action 5.1.1 (c)	Piloting of PES areas in at least 3 sites to support hydropower operations. **Implementing Agencies:** DoF (MAF), Department of Water Resources (MoNRE), Ministry of Energy and Mines.	1			
Action 5.1.1 (d)	Establish policy and guidelines for the application of the concepts of Payment for Ecosystem Sservices (PES) and Reduction of Emission from Deforestation and forest Degradation (REDD+). **Implementing Agencies:** DoF (MAF), Department of water resources (MoNRE), Ministry of Energy and Mines, Ministry of finance,DIC (MPI).	1			
Target 5.1.2: Strengthened institutional mechanisms to increase participation of biodiversity stakeholders in land use decision making are in place in at least 3 key economic sectors (energy, agriculture and forestry) and locally in at least 3 provinces.					
Action 5.1.2 (a)	Pilot preparation of participatory provincial level biodiversity planning in 3 provinces (PBSAP initiative). **Implementing Agencies:** DFRM, National CBD/NBSAP Focal Point (MoNRE) and provincial agencies/stakeholders.	1			
Action 5.1.2 (b)	Development of practical guidelines including minimum conditions for stakeholder consultation and participation in NRM/BD plans and decision making. **Implementing Agencies:** DFRM, National CBD/NBSAP Focal Point (MoNRE), MAF, other sectors, Citizens of Lao PDR.	2			
Target 5.1.3: Integrated strategy for tapping multiple funding sources (internal, external &innovative) in place so that funding windows for BD (Agro-BD) increase					

Action Number	List of Actions	Priority	Period		
by at least 50% by 2020.					
Action 5.1.3 (a)	Assessment of internal sources of financing implementation of NBSAP including status of various funds created by law. **Implementing Agencies:** DFRM**,** National CBD/NBSAP Focal Point (MoNRE).	2			
Action 5.1.3 (b)	Capacity development for resource mobilization. **Implementing Agencies:** DFRM**,** National CBD/NBSAP Focal Point (MoNRE).	1			

11. MAINSTREAMING BIODIVERSITY TARGETS AND ACTIONS INTO RELEVANT SECTORAL AND CROSS-SECTORAL STRATEGIES AND PLANS

To ensure that the practices advocated by the NBSAP are adopted and sustained by stakeholders, there is a need to define how the NBSAP will be mainstreamed. For this purpose, the NBSAP draws guidance from the Framework for National Sustainable Development.

The NBSAP will work with the different national agencies as well as provincial agencies to mainstream biodiversity concerns in the current and proposed regular programs and budgets. There are four basic processes involved.

- First, identify the important sets of principles, concepts or practices that need to be mainstreamed. These practices are usually the innovative practices that have been piloted and demonstrated in specific areas for several years and have been proven to be effective.

- Second, identify the key policies, strategies and programs in which the principles and practices would be incorporated. These policies, strategies and programs are those that receive resources (manpower and financing) for implementation. Targets of mainstreaming may also include specific geographic areas or interest groups.

- Third, determine the effective ways in mainstreaming the principles and practices into the targeted policies, strategies and programs. These would involve a range of approaches such as identifying entry points, participatory action research, participation in policy dialogue, participation in mid-term reviews and various information and communication strategies.

- Fourth, ensure implementation of NBSAP considers the priorities and interests of all relevant biodiversity conventions that are currently being implemented in the country.

For instance, to mainstream specific innovative practices for biodiversity conservation in agriculture programs, the first step would be to pinpoint specific good practices to be promoted. An example would be the set of practices in making bio-fertilizers. The second step would be to identify specific agencies, programs of MAF that would have the mandate, or interest, to incorporate this practice.

The third step is to determine the mainstreaming strategies. Practical examples include involving field officers in designing and monitoring ‘action research’ to ensure ownership of the concept; conduct study tours, workshops, and feedback sessions; and incorporating methods into regular extension materials, recognizing good efforts.

Table 28: Key principles and practices to mainstream and target policies and programs.

Innovative practice that needs to be mainstreamed	Target Policy and Program	Selected Thrusts of the program that can serve as entry points for mainstreaming
1.0 Sector Plan directly contributing to BD		
Clarification of forest classification scheme to rationalize the role of slash and burn agriculture.	Forestry Strategy to 2020 and relevant programs.	Establish participatory sustainable forest management system.
Support services to pioneer communities of sustainable agriculture and use of native varieties.	Agriculture Strategy 2011-2020 and relevant programs.	Lowland agricultural modernization adapted to climate change and conservation of upland ecosystems.
Promotion of collaborative management approaches in fisheries.	National Fisheries Strategy and relevant programs.	Establish fish conservation zones and education programs on fisheries.
Including biodiversity resources as source of food for nutrition and primary health programs.	Lao Nutrition Strategy to 2020 and relevant programs.	Promotion of dietary diversity especially among ethnic groups, protection of sources of diversity.
Biodiversity protection especially in wetland areas as part of hydro power projects.	National Water Resources Policy to 2020 (under development).	Establishment of IWRM particularly at sub-watershed level and their governance through RBOs.
Breeding management of native animal breeds as component of climate change adaptation in agriculture.	National Action Plan for Adaptation to Climate Change (NAPA).	Establish programs in increasing resilience to impacts of climate change.
Biodiversity protection as an organic part of protocols for tourism agencies.	Tourism Strategy to 2020.	Promote community-based ecotourism and environmentally sound tourism business.
2.0 Cross–sectorial plans that can enhance BD conservation and sustainable use		

Innovative practice that needs to be mainstreamed	Target Policy and Program	Selected Thrusts of the program that can serve as entry points for mainstreaming
Amend incentive systems to encourage preparation of biodiversity oriented and business plans.	Draft National strategy for private investment promotion and management until 2020.	Citizen participation in the development of decisions as a critical part of the process to reduce business risks and resource conflicts.
Biodiversity as part of guidelines for local authorities in the preparation of the provincial socioeconomic development programs.	Strategic Plan on Governance for 2011-2020.	Up-scaling successful innovations in governance, such as Distinct Development Funds and greater citizen participation in planning and prioritization and strengthening civil service.
Biodiversity conservation, sustainable use and equitable sharing as part or regular curriculum for primary, secondary and tertiary levels.	Education Sector Development Framework (2009-2015).	Provides inclusive education for disadvantaged sectors (e.g. ethnic groups, girls) and adopts alternative modalities such as village based community learning centres, mobile school, etc.
Biodiversity protection as organic criteria in the selection of projects to be supported in the poverty stricken areas.	National Growth and Poverty Eradication Strategy (to 2020).	Eradication of slash and burn and transition to sedentary agriculture.
Biodiversity protection and sustainable use as part of protocols for preparing land use plans.	National Land Use Strategy.	Biodiversity concerns are integrated into the process of land concession and the related legal process as well as linkages towards achieving SDGs.

12. MAINSTREAMING AND SYNERGIES AT THE LOCAL LEVELS

Objective realities indicate that Local Authorities are increasingly under pressure to proactively plan for natural resources including biodiversity protection even if it welcomes large-scale development works in the areas (plantations, mining, hydropower). Provincial Authorities in at

least four provinces are increasingly assuming crucial roles in managing land use and providing guidance in the direction of private investments.

The NBSAP would benefit immensely if provincial authorities and district authorities prepare their own (albeit simpler) versions of the NBSAP to address local biodiversity issues and concerns. Currently, with support from the ABP and NCSA_FU projects and IUCN, two Provincial Biodiversity Strategy and Action Plans (PBSAPs) have been prepared for XiengKhouang and Attapeu provinces.

The promotion of biodiversity planning at the provincial level will build on the current movement to strengthen local administration and devolve decision making and funds to local levels. An example of this is the establishment of District Development Funds (DDF) or block grants to districts for the latter to have greater flexibility in identifying and prioritizing projects with citizen participation.

This NBSAP contains specific targets and actions that support local authorities in preparing their local environmental plans and programs that cover biodiversity and agrobiodiversity conservation and use. The following key processes are proposed to assist provincial authorities in their biodiversity concerns as part of NBSAP implementation.

The NBSAP management will work with selected provincial authorities, the Ministry of Home Affairs, MPI-NERI, and PACSA to implement the following processes in collaboration with the key stakeholder groups in the province or district. A local task force may be organized to facilitate the process. Local authority planners, PAFO staff, and local NGOs may constitute the task force with the assistance from interested INGOs. The steps include:

- Assembling information on the economic values of natural resources and biodiversity at the province level and communicate it visually and geographically to local stakeholders.

- Overlaying information on NRM issues on the information on economic values visually and geographically to local stakeholders. Assessing how the issues would jeopardize the local natural capital.

- Exposing provincial leaders to emerging good practices of other provinces in achieving a balance between large-scale land-based investments and biodiversity protection.

- Preparing a simple Provincial Strategic Action Plan consisting of short-term and long-term measures. Short term measures would be those that are immediately doable and can rely on local fund resources.

- Use of the above plan to guide the annual planning and budgeting process of local authorities.

- Documenting and disseminating successful practices to local authorities.

- Recognizing and publicizing emerging good practices.

13. CAPACITY DEVELOPMENT PLAN FOR NBSAP IMPLEMENTATION

13.1 Nature of knowledge and skills needed

Based on the results of the NCSA, there is a major need to strengthen capacities in planning and implementing the NBSAP. For this purpose, it is useful to review the types of actions contemplated by the NBSAP. Table 34 will indicate the 28 targets classified into 8 general types of actions ranging from amendment of targeted policies and programs to the implementation of capacity building, actions, and program management.

To implement these actions, at least three major types of knowledge and skills might be needed: Environment and Natural Resources Management (ENRM); Program Management (strategies, plans and programmatic approaches); and Training and Communication (See Table 34). In addition, there will be a need to familiarize with the relevant science and technologies associated with certain sectors outside the realm of ENRM. These include such topics as tourism, mining, hydroelectric systems.

Table 29: NBSAP implementation and knowledge and skills needed.

Types of Actions	Key Knowledge and Skills Needed		
	Environment & Natural Resources Management	**Program Management**	**Education, Information and Communication**
Assessment and revision of specific policies and instruments			
Preparation/revision of a sector program, including its systems and procedures			
Preparation/revision of area-based plans (protected areas, local environment plans, LUPs)			

Bio-technical survey/research and documentation			
Design and conduct of organizational analysis and training programs			
Establish a sharing network and make corporative agreements			
Preparation and implementation of educational and communication campaigns and modules			
Coordination, monitoring and resource mobilization			

Note: *Darkest shade - highest frequency/importance.*

13.2 Establishing roles and accountabilities

There is a continual reorganization of government. Specific offices, which are responsible for CBD implementation, are included in this reorganization. One prerequisite to attain effective capacity development is to clarify the roles and responsibilities of government actors. This may take 2 years to accomplish. The formulation of training programs must take this into consideration. One of the implications is that the training program may have to include interim interventions to help specific offices to adapt to the changes under the reorganization and help them establish and rationalize their missions, responsibilities and operating procedures.

13.3 The nature of interventions

The nature of the NBSAP itself will cover three levels of capacity development: systemic (or policy related) capacity, institutional (or organizational) capacity, and human (or individual) capacity. The NBSAP aims to develop these 3 levels of capacity through its five strategies, 28 targets and various actions. At the same time, NBSAP program management aims to develop human resources capacity to implement the wide range of NBSAP tasks (i.e. policy formulation) to project implementation.

The targeted human resources will include relevant government and civil service personnel, civil society partners, business leaders, as well as community leaders, trainers, and key cross-cutting sectors such as female, youth and ethnic groups.

Due to the sheer number of targets and actions, a Training Need Assessment (TNA) will be conducted for each of the 5 major strategies on the 1st year. The TNA will identify the key competencies needed under each of the 8 action types above. On this basis, both training and non-training related needs of target groups will be determined through rapid surveys and focus group discussions. These surveys will also recall, reflect, and document previous initiatives in human resources development and training.

Based on the TNA, capacity development interventions will be formulated. The actual number of activities and scope of training programs will subsequently be determined during program implementation. For planning purposes, however, at least five (5) training programs may be contemplated, representing the five (5) key strategies and 28 national targets of the NBSAP. Strategy 1 (Ecosystems and Species Protection) may also require sub-strategy programs. Training programs will be interdisciplinary in nature.

The five training programs will be transposed into agency level programs where day-to-day management would be made possible through the creation of agency-based training task forces and, or part, of sub-sector working groups.

Agency task forces and parts of sub-sector working groups will consist of human resources managers, technical subject matter specialists, and professional training managers. Table 35 indicates the kind of training programs and the lead and co-lead agencies for each.

Table 30: Lead and Co-lead agencies for training programs supporting NBSAP strategies and targets.

Training Program for NBSAP implementation	Lead Agency(L) & Co-lead (CL)			
1. Protect ecosystems species and genetic diversity	MAF	MONRE	MOST	ME
Sub Strategy 1 - Forest	L	CL		
Sub Strategy 2 - Wetlands	L	CL		
Sub Strategy 3 - Agriculture	L		CL	
Sub Strategy 4 - Urban		L	CL	
Sub Strategy 5 – Protected Areas	CL	L		
2. Integrate the values of biodiversity in decision	CL	L		

making				
3. Strengthen the knowledge base	CL	CL	L	
4. Inspire and enable actions	CL	L		CL
5. Enable preparation and implementation of programs	CL	L		

Preparation of the training programs based on the TNA should have the following features:

- Unless necessary, utilize existing and potential national and regional/international training programs;
- Recognize lessons learned from previous training programs;
- Strong reference to conditions on the ground;
- To some extent, give preference to training teams rather than individuals;
- Emphasise self-learning, peer learning and hands on learning; and
- Complement other interventions such as information and communication

13.4 Training resources

The training programs must be supported by ample training resources. For this reason, an inventory and documentation of training resources for NBSAP will be needed. The inventory will identify the existing training programs and training materials that can immediately meet some of the needs of NBSAP. At the same time, locally based subject matter specialists and trainers will also be identified and reflected in a directory to be formulated.

Some of the immediate sources of training resources would include the following:

- Project offices of previous and on-going innovative projects supported by lead agencies themselves;
- Research centres of NAFRI;
- Selected faculties of Agriculture, Forestry, and Environmental and Natural Sciences at universities and colleges;
- NPAs who have developed specialization on certain topics;
- On-going projects;

- Partner INGOs who have supported innovative projects; and
- International technical organizations

In each of the above institutions, subject matter specialists would exist and can be tapped. Specialists could also be the innovative community and farmer leaders, women and youth leaders, equipped with Traditional Knowledge on biodiversity.

In addition to the technical subject matter specialists, the training programs will need the services of training facilitators, who are equipped with the tools of adult learning and communication. These facilitators would help ensure that training modules are effectively delivered.

The NBSAP program managers will tap the technical support of the CBD secretariat and technical organizations and projects supporting various elements of the CBD.

14. COMMUNICATION AND OUTREACH STRATEGY FOR THE NBSAP

14.1 Support to the human capacity development process.

The various strategies and targets of this NBSAP require support from enabled stakeholders who are aware, interested, and capacitated to contribute their time and effort for NBSAP, whether as civil servants, business people, volunteers, or ordinary citizens.

Section 10 describes the strategy for human resources development to provide the manpower for the NBSAP. This section describes the communication strategy that would complement the human resources development strategy.

For people to contribute their time and effort to a noble endeavour such as the NBSAP, they would normally go through four stages of attitudinal transformation. These stages are: a) becoming aware of the issue or opportunity; b) showing interest to do something about it; c) dedicating or committing to do something; and finally d) taking an action.

The communication strategy will guide NBSAP program managers to disseminate the right development messages to the right people (target audience) using the proper way (mediums such as print, radio, internet, etc.) so they can go through with the stages of awareness, interest, dedication and action as described above.

14.2 Communicating the practices advocated by the NBSAP.

There will be a need to develop an effective communication plan that will define the overall objectives, scope, targets and methods of communication. To formulate this plan, the NBSAP program managers have to conduct the following:

- Identify the specific desired actions from the key stakeholders during the 10year NBSAP period. These actions may include the following: amending policies, formulating programs, allocating budgets, teaching farmers, and implementing field actions.

- Conduct a rapid review of knowledge attitude and practices (KAP) of the target stakeholders. This would allow NBSAP program managers to understand the current level of knowledge, attitude and specific skills of different stakeholders and allow the development of communication plan for specific audience to be effective. This process is very similar to the TNA and could also be done simultaneously with the TNA as one activity. Prepare the communication plan based on the results of the KAP review conducted. The communication plan would consists of the following information: a) target stakeholders; b) desired actions of the stakeholders; c) current set of knowledge, attitudes and practices; d) key development messages to be conveyed; and e) medium of delivering the development messages. An example is provided in Table 36

- As needed, replicate the above process at the provincial levels where location-specific issues and stakeholders need to be understood.

Table 31: Indicative outline of components of the overall communication plan, showing examples of stakeholders and actions to communicate with them effectively.

Examples of Key Stakeholder	Illustrative Actions Desired from the Stakeholder	Illustrative Development message to convey to the stakeholder	Medium/method of conveying the message
National Policy Maker (Ministerial officers, National Assembly member)	Address policy gaps and provide budget to fully enforce ESIA for projects in biodiversity – rich areas.	True economic value of biodiversity is much higher than usually thought. Importance of biodiversity resources requires enforcement	Policy Briefs based on research, Inter-country study tours, letters from Stakeholder groups, and print.

		of full ESIA.	
Local Policy Maker (Governors)	Fully enforce above policy at local levels.	Weigh costs and benefits carefully of plantation investments vis a vis needs of farming communities	Conferences Instructions from National level and peer to peer interaction between local officials.
Provincial Technical Officers	Accelerate land use planning and zoning and use as basis for reviewing investment proposals.	Weigh costs and benefits carefully of plantation investments vis a vis needs of farming communities.	Technical workshops Internet based community of practice, Office instructions, print, TV and radio.
Business people	Apply correct compensation and production process to incorporate sustainable production and pollution prevention.	It is more profitable to apply ecologically sound production process. It also qualifies you to meet evolving needs of environmentally conscious global markets.	Formal and informal sessions sponsored by the Business AssociationS, internet based news services television.
Farmer leaders /innovators	Adopt and demonstrate recommend biodiversity – friendly practices.	Reduction of costs and increase in income from a diverse source of livelihoods.	Farmer class, inter community visits, television, and radio.

14.3 Communicating the NBSAP as a program.

In addition to communicating the wide range of desired actions of the stakeholders, there is a need to communicate the NBSAP program to the wider community as a whole. This may be done by preparing a popularized (Question and Answer) version of the NBSAP or by preparing an audio visual presentations of the progress done so far on biodiversity.

A website on the NBSAP will be established and maintained where progress and information of the different NBSAP strategies and targets would be uploaded. Subsequent materials may include hand-outs describing how the NBSAP can be relevant to specific sectors or business associations.

National Events would also be tapped as opportunities to further increase the level of awareness of the different stakeholders.

15. PLANS FOR RESOURCE MOBILIZATION FOR NBSAP IMPLEMENTATION

15.1 Recent trends and overall recommendations

In Part 1, Section 3.10, the financing framework including the sources of financing were described. Specific actions are needed in order to tap these sources.

- To justify investments in biodiversity, there will be a need for continuing communication of the true value of biodiversity expressed in monetary terms by the independent resource economists. Several studies have been done in the past and the results must be widely disseminated.

- There is a need to clearly define the financial requirements in implementing effective biodiversity conservation and sustainable use including those of PAs. This will provide proper guidance to the authorities and partners on the minimum amounts that need to be raised annually. For instance, recent studies indicate that each PA, on the average, would need 83,000 USD. At the moment, however, each PA works on an annual budget of 13,500 USD, only.

- The financial crisis in donor countries implies the need to tap more funding from internal sources. Knowledge on the planning and budgeting protocols for internal funds would be essential in order for the advocates to better influence the planning and budget process for long-term sustainability.

- Within the internal sources of funding, it is important to fully take advantage of the various forms of user fees and levies applied by the GoL. The two Trust Funds are active in accounting and collecting of these funds. There is a need to help in expanding the absolute amounts accruing to these funds. This would be achieved through proper accounting of the amount of funds that must be collected, which in turn is commensurate to the amount of natural resource that was used and diminished. Operational guidelines are needed.

- In addition to the current sources of funds for the various trust funds available for biodiversity (Forest Protection Fund and Environmental Protection Fund), there is a need to accelerate the development of guidelines and protocols for introducing extracting PES

and other market-based instruments, particularly from the use of water or from preserving forests for carbon sequestration. The latter has more specific protocols called the REDD+.

- Donor funding is declining and becoming unpredictable. However, the limited available funds still may not yet be used optimally. This means that there is still a room for tapping available funds and use this to catalyse technical and institutional innovations on the ground. Further, there is a need to engage the SWGs, development partners, and other organizations to engage their support, regular dialogues and updates on the issues and opportunities in biodiversity conservation and use. This active engagement is an important factor for successful planning, implementation and monitoring.

- The private sector is the largest source of investments. The challenge would be to influence this sector to internalize an environmentally sound production practices. This will not only ensure that the environment is protected. In many cases, these turned out to be more cost effective on their part. There are two approaches to encourage the transition towards environmentally sound practices in the private sector. One is through legislation and enforcement, and the other is by encouraging the incorporation of environmentally sound practices in the codes of conducts of the industry associations, including Cleaner Production Technology. Corporate Social Responsibility could also be encouraged.

- On the basis of financial requirements for the NBSAP, there is a need to prepare an Integrated Financing Strategy (IFS) that would prioritize specific windows to tap each of the 4 sources of investments defined by the 7th NESDP (internal, donor, private and banks). The strategy would identify specific actions that would lead to actual allocation of funds for biodiversity in both the short and long-term. The initial elements of the strategy may be gleaned from Table 37 below.

- In addition to the above, it should be noted that the GEF is a major financing mechanism for implementing revised NBSAPs and that the NBSAP 2016-2025 should guide the prioritization exercise of the Government of Lao PDR in utilizing the GEF resources.

15.2 Specific actions

Specific actions are needed to be implemented during the 3 phases of the project. Table 37 describes the actions needed under each type of funding sources as identified in the 7th NESDP.

Table 32: Actions and timing for tapping key source of funding.

SOURCE OF FUNDING	SPECIFIC ACTION

	Year 1-3	Year 4-7	Year 6-10
INTERNAL			
National Agencies	For CBD Committee to develop Integrated Financing Strategy for NBSAP (see item 14.1).	To participate in the review and update of key program strategies and annual program preparation of at least 2 agencies.	Replicate process in other agencies.
Provincial Authorities	Start in 1 province to demonstrate how to tap resources from the District Development Fund (DDF).	Assess results, recognize good practices and expand to 4 more provinces or total of 5 provinces.	Expand to other provinces with guidelines from Ministry of Home Affairs.
Existing Trust Funds (FRDF, EPF)	Assess shortfalls in collection from non-forest sector.	Establish and demonstrate mechanism to collect uncollected portions. Implement full collection in at least 1 province.	Implement full collection in all other forest rich provinces.
Pipeline sources -PES for water and REDD+ for forests	Implement pilot work in at least 3 sites and identify more future pilots.	Expand pilots and firm up guidelines based on experience.	Further expansion.
ODA, SDG AND ASSOCIATED SOURCES FROM UN SYSTEM			
Existing portfolios	Be part of the critical SWG discussions to build awareness on the issues and opportunities.	Participate in drafting the 8th NESDP and next round of sector targets.	Sustain the process.
Pipeline portfolios	Match priority needs and proposals with specific development partners.	Participate in the country strategy formulation of the donor partner. Develop and implement proposals.	Sustain the process.
Small Start-up Grants to support	Work with special CBD task forces to develop Programs of Work for targeted themes	Avail of start-up grants.	Sustain the process.

SOURCE OF FUNDING	SPECIFIC ACTION		
	Year 1-3	**Year 4-7**	**Year 6-10**
programs under CBD	(e.g. PAs).		
Small Grants from INGO system	Work with NGO working committees to establish priorities.	Local NGOs to work with INGOs to implement priorities.	Sustain the process.
PRIVATE SECTOR			
Mandatory incorporation of environmentally sound measures	Work with LCCIand business associations to develop the rules.	Pilot in at least 3 industry sectors.	Expand to more sectors.
Corporate Social Responsibility	Pilot concept with one industry (e.g. tourism).	Reflect on the gains and implement in more sectors. Recognize good practices.	Adopt codes of conduct for all key sectors under LCCI.
BANKING SECTOR			
Banking schemes tailored to local communities and associations.	Conduct dialogue to identify feasible lending portfolios to support NRM based enterprises.	Pilot portfolio in selected sectors.	Expand portfolios.

16. NATIONAL COORDINATION, MONITORING AND EVALUATION

16.1 Factors to consider

The NBSAP implementation involves planning, coordinating, and monitoring of five strategies, 27 targets and 61 actions by different Ministries. The coordination mechanism of the NBSAP will take into consideration, important challenges advocated by the CBD as well as operational challenges:

- The need to incorporate biodiversity concerns in the review of investment proposals and in the protocols of industries that rely on natural resource extraction and agriculture. This means obtaining the active participation of the private sector which is the largest source of financing for the 7th NESDP.

- The need to fully tap innovative forms of financing (e.g. PES, REDD+, CSR) in the light of declining and less predictable ODA.

- The need to communicate more effectively, using the advances in information and communication technology and elicit the interest and support (mandatory and voluntary) of all key stakeholders especially those beyond the reach of the agriculture and NRM sectors.

- The need to effectively adapt to administrative challenges posed by the large number of existing working groups addressing other concerns as well as the on-going government re-organization process affecting agencies responsible for biodiversity to ensure continuing service for biodiversity concerns.

16.2 National Coordination Mechanism.

Given the above concerns and opportunities, the following national coordination mechanism is proposed:

- The CBD committee will exercise overall technical and administrative oversight of the program. The new steering CBD committee was proposed and discussed during the NBSAP institutional assessment. It has not yet been adopted due to changes in the institutional arrangement. This committee will also have an oversight on coordinated action to achieve the objectives and actions under the NBSAP under other biodiversity conventions Lao PDR is currently implementing.

- A National Technical Working Group (NTWG) will be created to provide technical recommendations on the implementation of strategies. The NTWG will be composed of focal points from core Ministries (MAF, MoNRE, MoST, Moe). Focal points of other agencies (i.e. MES, MICT, MEM, and NLTA) and networks will be consulted when the need arises. Focal points from the business sector (LNCCI), NPA (NPA network) and INGOs (INGO network) will also be invited from time to time.

- A full time National Coordinator will be appointed by the MoNRE to be in charge of day to day management as a CBD National Focal Point (NFP). The coordinator will also serve as secretary of the CBD steering committee and chairperson of the NTWG. He or she will also

head the secretariat to be based at MoNRE. Technical and administrative staff will be provided by MoNRE with seconded staff from MAF and MoST.

- In each ministry, a focal person for NBSAP will be appointed. He/she will automatically become a member of the NTWG. In core ministries (MAF, MoNRE, MoST), department level focal points will be further appointed by the concerned Ministry. The ministry may create ministry-wide working groups to consist of focal points from concerned departments. It should also collaborate closely with existing subsector working groups.

- The CBD committee together with the MPI will establish a regular consultative mechanism with the private sector. This will be done at least annually and will involve the LNCCI and key business associations such as those from forestry, tourism and agricultural plantations. This forum will aim to identify important milestones in support to the NBSAP. Focal points in each business association will also be identified.

- The CBD committee will set up a website to serve as repository for various plans, work plans, reports, and special reports. An e-mail service will be provided to officers and staff of agencies involved in NBSAP as well as to representatives from other sectors. If deemed appropriate, the existing web-based clearing house mechanism for the Lao PDR hosted by the GMS secretariat supported ASEAN Centre for Biodiversity (ACB) can serve as the conduit.

16.3 Implementation Planning for NSBAP Targets Listed below is the process of implementation planning for each NBSAP target.

- Each target and action of the NBSAP will have a corresponding Responsible Agency (RA) as reflected in Table 3. It is the responsibility of the RA to prepare the detailed scope, work plan and budget for each action. In some cases this will build on existing projects but majority would build on pipeline projects and new projects. The RA will also be responsible for reporting on the progress of the actions.

- On the first six months of the program, the CBD committee will convene a *National Inception Workshop* among focal points from government agencies as well as business, NGOs, and other sectors. Most of these institutions have been involved in varying degrees in the preparation of the proposed NBSAP. The national inception workshop will clarify the objectives, scope and instruments of the NBSAP and how this would relate to the existing and pipeline programs.

- The CBD Committee will also hold one-day C*onsensus and Planning Workshops* with each concerned ministry and sector within the first 12 months. The purpose of the workshops

would be to heighten awareness, understanding, and commitment to the NBSAP as well as to pinpoint general directions, operating mechanisms and formalize the identification of focal points and other staff that would be involved. The workshops would include a discussion on how the NBSAP would help the RA achieve its mandates.

- After the consensus and planning workshops, the CBD Committee will authorize the focal person from MoNRE to enter into a *Memorandum of Agreement (MoA)* with concerned ministries to define the specific tasks and relationships associated with each target and action. The MoA will also contain provisions for the allocation of budgets for the actions. The budgets may come from the RA itself or from special funds that the CBD committee would be able to generate from international partners.

- Agency based focal persons will be responsible for ensuring that the work plans for each action under its concern would be incorporated in the annual work plan and budget to be prepared by the RA. The focal persons would report to the CBD through the working group on the actual nature and scope of the actions that will be incorporated in the agency work plan.

16.4 Monitoring and Evaluation, and Knowledge Management

- The NBSAP targets are supported by outcome indicators while the proposed actions are supported by output indicators. These are presented in Tables 21, 22, 23, 24, and 25. The CBD committee would establish a monitoring and evaluation (M&E) system. The M&E system would be a management tool to ensure that:

    - progress is closely monitored relative to targets;

    - gaps and lessons learned are identified as early as possible for fine-tuning of work plans; and

    - Good practices are identified and recognized to encourage stakeholders.

- During implementation planning (described in section 15.3), agency focal points will fine tune the indicators for the targets and actions based on the analysis of baseline information. The revised indicators will be submitted to the CBD Committee for review and approval. Once approved, the revised indicators will be circulated among all key stakeholders.

- The RA will be responsible for monitoring outputs relevant to the actions under their jurisdiction. This will be done through regular monitoring, reporting and evaluation

mechanism of the concerned agency. Members from other agencies and other non-government sectors will be invited to join in selected monitoring visits and events.

- On the other hand, the CBD committee through the NTWG and the National Secretariat will be responsible for monitoring the progress of outcomes of the five strategies and 28 national targets. Representative from other sectors will be invited to join in selected monitoring visits and events.

- The CBD committee and NTWG will hold an annual Assessment and Planning Workshop wherein each concerned agency will share information on the progress of outputs of NBSAP actions and outcomes of NBSAP targets. These events will also identify emerging good practices arising from the implementation. This information will then be used as input for preparing plans for the subsequent year. Representatives from business and NGO sectors will be invited.

- Each core agency (MAF, MoNRE, MoST, and MoE) will also be responsible for conducting at least one thematic workshop each year on cross-cutting issues to deepen the understanding of recurrent issues. At the same time, these workshops will identify and recognize good practices and contribute to the development of relevant research and development agenda to support the NBSAP. The CBD committee through the NTWG will co-sponsor the workshops.

- International partners based in Vientiane (INGOs, CGIAR agencies, among others) will be invited as co-sponsors of and resource persons to these events. Representatives from the CBD secretariat responsible for thematic Programs of Work (PoW) will also be invited.

- Among the workshop themes recommended for the 1st two years are:

    - Biodiversity and business
    - Enhancing the role of the Forest Resources Development Fund and other trust funds
    - Protected area governance
    - Biodiversity and local authorities
    - Biodiversity and media
    - Biodiversity and formal education

- Under Strategy 3 Target 3.1.3, the GoL would like to strengthen the existing web-based clearing house mechanism currently hosted by the GMS secretariat office to expand to

include CBD. The CBD together with the GoL will conduct a joint review of the current status of this existing CBD clearing house. Measures will be identified and implemented to fully utilize this system as instrument for coordination and synergy among implementers and stakeholders of the NBSAP.

Bibliography

ABP. (2015). *Lao PDR National Agro-Biodiversity Programme Strategy and Action Plan II.* Vientiane Capital.

ADB. (2006). *Urbanization and sustainability in Asia.* Philippines: ADB.

Gerrard, P. (2004). *Integrating Wetland Ecosystem Values into Urban Planning: The Case of That Luang Marsh.* Vientiane, Lao PDR: IUCN and WWF.

Gov-Lao-PDR. (2015). The MDGs and lessons learnt for the Post-2015 Period : A summary review. Vientiane.

IUCN. (2002). *Lao PDR Biodiversity: Economic Assessment.* Vientiane: IUCN.

IUCN. (2006). *Invassive Alien Species in the Lower Mekong Basin.* Regional Conservation Programme - Ecosystem and Livelihoods Group, IUCN, Asai.

IUCN. (2011). *NBSAP Assessment : An assessment of LAO PDR's National Biodiversity Strategy to 2020 and Action Plan to 2010.* Gland, Switzerland.

IUCN. (2011). *NBSAP Assessment: An assessment of Lao PDR's National Biodiversity Strategy to 2020 and Action Plan to 2010.* Gland Switzerland and Vientiane, Lao PDR.

Lao PDR. (2015). *Decree of Protected Areas.* Vientiane Capital: Government of Lao PDR.

Lao Statistics Bureau. (2012). *Food Security in Lao PDR: A Trend Analysis.* Vientiane, Lao PDR: EC-FAO.

Lao Statistics Bureau, & The World Bank. (2014). *Poverty Profile in Lao PDR: Poverty Report for the Lao Consumption and Expenditure Survey n2012-2013.* Vientiane: Ministry of Planning and Investment and Worl Bank.

Lao-PDR. (2004). *National Biodiversity Strategy to 2020 and Action Plan to 2010.* Vientiane.

Laurila-Plant, M., Lehikoinen, A., Uusitalo, L., & Venesjarvi, R. (2015). How to value biodiversity in environmental management? *ELSEVIER*, 1-11.

MA. (2005). *Ecosystem and Human Well-being: Synthesis. .* Washington, DC.: Island Press.

MAF. (2005). *Forest strategy to the year 2020 of the Lao PDR.* Vientiane, Lao PDR: Ministry of Agriculture and Forestry .

MAF. (2005). *Report on the Assessment of Forest Cover and Land Use During 1992-2002.* Vientiane, Lao PDR: Department of Forestry, Ministry of Agriculture and Forestry.

MAF. (2010). *Fourth National Report to the Convention on Biological Diversity.* Vientiane, Lao PDR: MAF.

MAF. (2010). *Fourth national report to the convention on biological diversity .* Vientiane: Ministry of Agriculture and Forestry.

MAF, & STEA. (2003). *Biodiversity Country Report.* Vientiane, Lao PDR: Ministry of Agriculture and Forestry (MAF).

MAF, & STEA. (2004). *National Biodiversity Strategy to 2010 and Action Plan to 2010.* Vientiane, Lao PDR.

MAF, & STEA. (2004). *National Biodiversity Strategy to 2010 and Action Plan to 2010.* Vientiane, Lao PDR.

MEM. (2015). *Ministry of Energy and Mines, Department of Energy Business*. Retrieved Novemeber 5, 2015, from http://www.poweringprogress.org/new/2-uncategorised/3-hydropower-in-lao-pdr

Minitry of Planning and Investment- Dept. of Int. Cooperation. (2015). Background Document for the 12th High Level Round Table Meeting. Vientiane.

MoNRE. (2012). *Lao Environment Outlook 2012.* Vientiane Capital: Ministry of Natural Resource and Environment.

MoNRE. (2012). *National Rio+20 Report for Lao PDR.* Vientiane, Lao PDR.

MoNRE. (2013). *Second National Communication on Climate Change of Lao PDR.* Vientiane Capital: Ministry of Naural Resources and Environment.

MoNRE. (2013). *Second National Communication on Climate Change of Lao PDR.* Vientiane Capital: Ministry of Naural Resources and Environment.

MONRE-UNEP. (2012). *Lao Environment Outlook 2012.* Vientiane.

MPI. (2009). *Poverty Environment Initiative (PEI) Investment in Lao PDR: Minimising the social and environmental impacts.* Vientiane, Lao PDR.

MPI. (2011). *The Seventh Five-Year National Socio-Economic Development Plan (2011-2015).* Vientiane, Lao PDR.

MPI. (2011). *The Seventh Five-Year National Socio-Economic Development Plan 2011-2015.* Lao People's Democratic Republic, Ministry of Planning and Investment (MPI).

MPI. (2014). Retrieved October 21, 2015, from http://www.nsc.gov.la/la/Population.php

MPI. (2015, November 6). Retrieved from Offcial Website of Investment Promotion Department, Ministry of Planning and Investment: http://www.investlaos.gov.la/

MPI. (2015). *Five Year National Socio-Economic Development VIII (2016-2020). 5th Draft, Translation Edit 01.* Vientiane Capital: Ministry of Planning and Investment.

MPWT, & MoNRE. (2013). *Country Analysis Paper: Lao PDR.* Vientiane, Lao PDR.

MRC. (2010). *State of the basin report 2010 .* Vientiane: MRC.

OECD. (2013). *Scaling-up Finance Mechanisms for Biodiversity.* Paris: OECD.

PEI. (2011). *Laos Country Report: Mid Term Review of the UNDP-UNEP Poverty- Environment Initiative (PEI) Scale-Up.* Vientian, Lao PDR.

STEA. (2005). *NCSA Report on the Identificatin of Priority Issues and In-Depth Analysis Including Cross-Cutting Issues.* Vientiane, Lao PDR.

The National Round table Process. (2014, October). *http://www.rtm.org.la*. Retrieved January 27, 2015

UNCTAD. (2013). *Sector-specific investment strategy and action plan. G20 indicators for measuring and maximizing economic value added and job creation from private investment in specific value chains.* Vientiane: UNCTAD.

WFP. (2007). *Lao PDR: Comprehensive Food Security and Vulnerability Analysis (CFSVA).* Vientiane, Lao PDR: WFP.

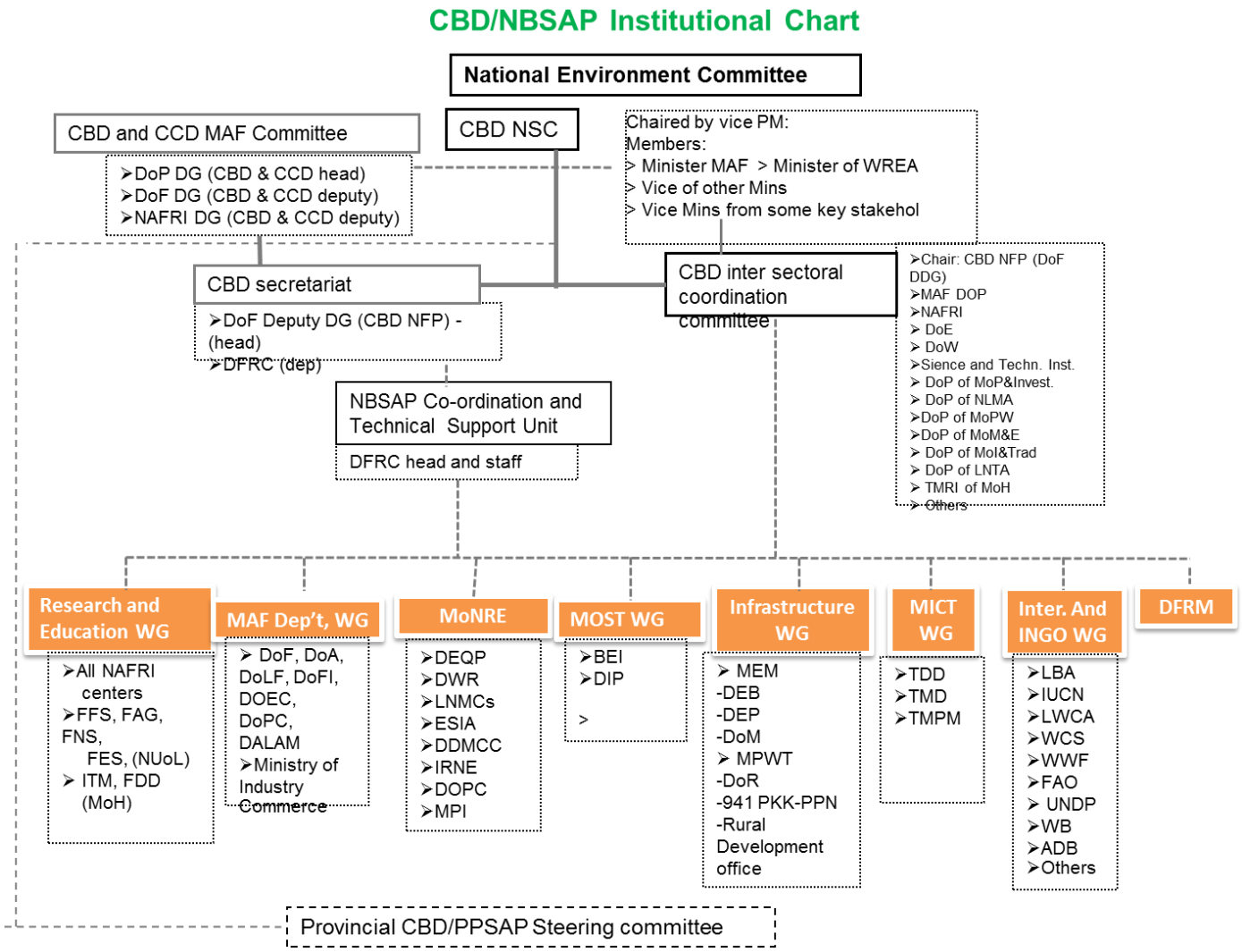
World Bank. (2014). *Environmental and Social Management Framework - SECOND LAO ENVIRONMENT AND SOCIAL PROJECT (LENS2).* Washington: World Bank Group.

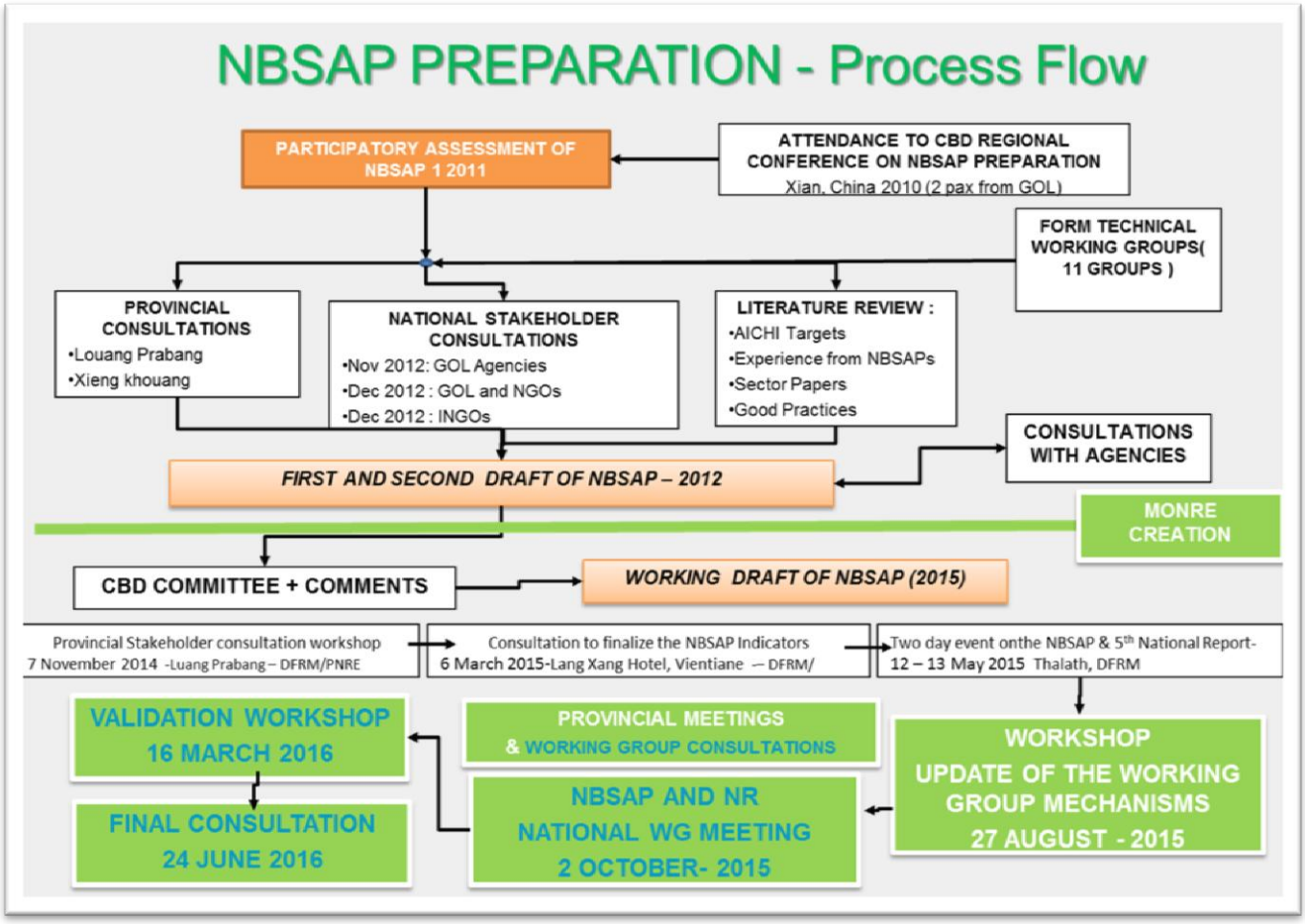
World Bank. (2015, November 15). *Lao PDR Environment Improves to Help Business*. Retrieved from The World Bank: http://www.worldbank.org/en/news/press-release/2015/10/28/lao-pdr-environment-improves-to-help-business

World Bank, & STEA. (2005). *Lao PDR Environment Monitor.* Vientiane: Worl Bank.

WREA. (2008). *Strategic Framework for National Sustainable Development Strategy for Lao PDR.* Vientiane, Laos: Water Resources and Environment Administration and Department of Planning, Ministry of Plannint and Investment.

Annex 1: NBSAP Stakeholders & Consultation Process




NBSAP PREPARATION - Process Flow
PARTICIPATORY ASSESSMENT OF NBSAP 1 2011
ATTENDANCE TO CBD REGIONAL CONFERENCE ON NBSAP PREPARATION
Xian, China 2010 (2 pax from GOL)
FORM TECHNICAL WORKING GROUPS(11 GROUPS)
PROVINCIAL CONSULTATIONS
•Louang Prabang
•Xieng khouang
NATIONAL STAKEHOLDER CONSULTATIONS
•Nov 2012: GOL Agencies
•Dec 2012 : GOL and NGOs
•Dec 2012 : INGOs
LITERATURE REVIEW :
•AICHI Targets
•Experience from NBSAPs
•Sector Papers
•Good Practices
CONSULTATIONS WITH AGENCIES
FIRST AND SECOND DRAFT OF NBSAP – 2012
MONRE CREATION
CBD COMMITTEE + COMMENTS
WORKING DRAFT OF NBSAP (2015)
Provincial Stakeholder consultation workshop
7 November 2014 -Luang Prabang – DFRM/PNRE
Consultation to finalize the NBSAP Indicators
6 March 2015-Lang Xang Hotel, Vientiane – DFRM/
Two day event onthe NBSAP & 5th National Report-
12 – 13 May 2015 Thalath, DFRM
VALIDATION WORKSHOP
16 MARCH 2016
FINAL CONSULTATION
24 JUNE 2016
PROVINCIAL MEETINGS
& WORKING GROUP CONSULTATIONS
NBSAP AND NR
NATIONAL WG MEETING
2 OCTOBER- 2015
WORKSHOP
UPDATE OF THE WORKING GROUP MECHANISMS
27 AUGUST - 2015

Annex 2: NBSAP Working Group Participants and Focal Points

Department of Forest Recourses and Management (DFRM):Mr. Vongdeaun Syhalath, DG of DFRM.

- Dr. Inthavy Akkarath, DDG of DFRM.
- Mr. Lamphan Kommadam, Head of Conservation Forest Management Division, DFRM.
- Mr. Hongthong Amphaychith, Head of Protection Forest Division, DFRM.
- Mr. Somvang Syhalath, Head of the Survey Division, DFRM.
- Mr. Saly Sinsavant, Head of Planning and Cooperation Division, DFRM.
- Mr. Somsack Sychomphou, Head of Administrative Division, DFRM.
- Mr. Sangvan Bouavong, Head of Aquatic and Wildlife Conservation Division, DFRM.

Education and Research Group : Dr. Somchanh Bounphanmy, Faculty of Sciences, National University of Lao PDR (NUoL)

- Mr. Khamphone Sengdara, National Agriculture and Forest Research Institute (NAFRI), Ministry of Agriculture and Forestry
- Mr. Khamseng Nanthavong, Faculty of Forestry, NUoL
- Dr. Phoutthasone Sybounnavong, Faculty of Agriculture, NUoL
- Dr. Bounsavanh Douangbouppha, Faculty of Environmental Science
- Mr. Mouachan Sayvue, Institute of Traditional Medicine

Agriculture and Forestry Group :Mr. Vandy Phetpasert. Department of Agriculture, MAF

- Mr. Phouvong Keppaseurt, Department of Forestry, MAF
- Mrs. Onkham Insomvilay, Department of Livestock and Fisheries, MAF
- Mr. Khansay Sayyavong, Department of Agriculture Extension and Cooperatives, MAF
- Representative from Department of Planning and Cooperation, MAF

Social and Environmental Group : Mr. Vonepasao Orlaseng, Department of Environment Quality Promotion, Ministry of Natural Resources and Environment (MoNRE)

- Mr. Sykhamphong Paodala, Department of Water Resources, MoNRE
- Dr. Douangmany Luangmany, Lao National Mekong Committee Secretariat
- Mr. Phouthone Lathvongsay, Department of Land Management
- Representative from Department of Disaster Management and Climate Change, MoNRE

Science and Technology Group : Mrs. Kongchay Phimmakong, Ministry of Sciences and Technology (MoST)

- Ms. Viengpasith Vanisalet, MoST

Energy and Mining Group : Mr. Phokin Meungchanh, Ministry of Energy and Mines (MEM)

- Representative from Department of Energy Business, MEM
- Representative from Department of Mines, MEM
- Mr. Soulasack Phonthachak, Ministry of Public work and Transportation (MPWT)

Culture and Tourism Group : Mr. Somxay Sipaseuth, Department of Tourism Development, Ministry of Information, Culture and Tourism (MICT)

- Representative from Department of Tourism, MICT

Development Partner Group : Mr. Adam Starr, IUCN Lao PDR, Country Manager

- Representative from FAO and UNDP, Mr. Ole Pederson (ABP)
- Representative from WCS, Mr. Sean McNamara
- Representative from TABI Project (MAF-SDC), Mr. Chris Flint
- Representative from GIZ, Mr. Ralf Kuepper
- Representative from IWMI, Mr. Matthew McCartney
- Representative from WB Lens 2 Project – DOF, Mr. Aidan Flanagan