



Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

National Report
To the United National Convention on Biological Diversity
(Volume 6)



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PREFACE

Lao People's Democratic Republic (Lao PDR), as a developing country, faces numerous challenges in terms of sustainable management of biological diversity and resource use. Nevertheless, the Government of the Lao PDR (GoL) has realized the need to protect biodiversity by establishing a national protected area system, as well as enacting laws, decrees, directives and regulations on the management of forest, aquatic animals and wildlife. Moreover, GoL became a signatory to the Convention on Biological Diversity (CBD)-also known as one of the Rio Convention in 1996. As such, it is committed to the preparation and implementation of a National Biodiversity Strategy and Action Plan (NBSAP) and National Reports (NR). Lao PDR's Sixth National Report to the Convention on Biological Diversity has been prepared by the Ministry of Natural Resources and Environment (MoNRE) with the gracious support of the Global Environment Facility (GEF) and technical support from the United Nations Development Programme (UNDP).

This report, prepared in accordance with the country's obligations under the CBD, is a key document providing a solid foundation to the Lao PDR's national biodiversity policy. It provides an update on the status, trends and threats to biodiversity as well as an update on the National Biodiversity Strategy and Action Plan 2016-2025. This report also provides critical information on the implementation of and progress towards Aichi Biodiversity targets. This Sixth National Report has not only given a unique opportunity to measure the status of biodiversity within Lao PDR, but also supplied critical information towards developing policy directions needed to address threats and emerging challenges, as well as formulating future conservation strategies and action plans.

On behalf of the Government of Lao PDR, I would like to express our appreciation to the GEF, UNDP and the Secretariat of the CBD for the support provided in producing this report. I also note the efforts of the Sixth National Report team in compiling the report. I wish to thank all relevant stakeholders for attending meetings and providing submissions and I particularly want to thank the members of the Technical Working Groups who provided most of the analysis of progress on the NBSAP.



Sommad Pholsena
Minister, Ministry of Natural Resources and Environment

EXECUTIVE SUMMARY

Lao People's Democratic Republic (Lao PDR) is a historically, culturally and environmentally rich country with a rich diversity of landscapes, ecosystems and cultures. In 1996, as part of the response to this loss of biodiversity the Government of Lao PDR (GoL) acceded to the Convention on Biological Diversity (CBD) also known as the Rio Convention. The GoL recognizes that biodiversity is currently declining at an unprecedented rate, due to human activities and increasing economic development. To address this problem, GoL took actions in the 1990s to address biodiversity conservation, by enacting laws and decrees and establishing a Protected Area System. The first Lao PDR National Biodiversity Strategy to 2020 and Action Plan to 2010 (NBSAP) was developed in 2004 and the 2nd NBSAP 2016-2025 is in current effect.

The Ministry of Natural Resources and Environment (MoNRE) has prepared a comprehensive Lao PDR Sixth National Report (6NR) for submission to the Convention for Biological Diversity. Support for this report was also provided by the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF). This process has involved extensive data collection, data analysis and the involvement, through stakeholders' participation, of a range of local and international NGOs, community organizations and other members of civil society. These other organizations have worked collaboratively with a range of line government agencies such as Ministry of Agriculture and Forestry (MAF), Ministry of Science and Technology (MoST), Ministry of Health (MoH), Ministry of Public Work and Transportation (MoPWT).

During the development of this 6NR stakeholder participation was facilitated through several training workshops and meetings. These included, training workshops in the use of the CBD online reporting tool, stakeholder's consultation meetings to determine the status of national targets. At these meetings the stakeholders gave input and provided an evaluation of the status of implementation, existing data gaps and the validation of available spatial information. The stakeholder meetings also addressed issues such as actions to mainstream biodiversity and the effectiveness of the actions undertaken to implement the Strategic Plan and NBSAPs. To help give a richer context to the 6NR, the report also includes six case studies that give an overview of the problems facing Lao PDR in conserving biodiversity and the types of responses that have been enacted within the country. The 6NR also includes an analysis of the current status of relevant National Policies, Plans, Programmes and Project Implementation that contribute to both national and global targets.

The main body of the 6th NR consists of five main sections. Section one provides an overview of the key actions undertaken by the GoL toward implementation of CBD. This section also highlights case studies that link to the NBSAP implementation such as the Biodiversity Conservation Corridors Project (BCC) of Lao PDR, The Agrobiodiversity Initiative of Lao PDR (TABI) and Capacity Building on Biodiversity Conservation and Management in Lao PDR through the Second Lao Environment and Social Project (LENS2). Sections Two and Three deal with the implementation status and assessment of the effectiveness of implementation of the 29 national targets set in the 2nd NBSAP. Section Four is the assessment of the progress toward the ABT implementation including activities undertaken since the 5th national report and Section Five is the biodiversity country profile.

In terms of the implementation and monitoring of progress of the Lao PDR 2nd NBSAP 2016-2025, there are 29 overarching national targets spread across the 5 National Strategies. Under those 29 targets are 69 corresponding National Actions. Of those 69 actions, the majority (38 actions) are intended to contribute to the NBSAP National Strategy 1 (Protecting

the ecosystem). Eight (8) actions contribute to National Strategy 2 (Valuing biodiversity), 9 actions contribute to strategy 3 (Strengthening the knowledge base), 6 actions contributed to National Strategy 4 (Enhancing Communication and Public Awareness), and 8 actions contribute to National Strategy 5 (implementing plans projects and programs).

Overall, for each of the National Strategies there has been significant progress towards commencement or implementation of the majority of associated National Actions and it is estimated that around 58% of the actions are actively under implementation, 36% are in the planning or early implementation stage and only 6% are considered to have not started implementation. For National Strategies 1, 2 and 4 all National Actions are either actively being implemented or are in the planning stage. For Strategies 3 and 5 around 11% and 38% of the National Actions respectively are yet to have any activities towards implementation.

The progress of Lao PDR in meeting the 20 International Aichi Biodiversity Targets has been mixed. Of the 19 Targets, that are relevant to the country, six are considered to be “*On Track to Meet the Target*”, five have made “*Progress towards target but at an insufficient rate*”, six have “*No significant change*” and 2 are potentially getting worse or “*Moving away from target*”.

LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---------|---|
| ABS | Access and Benefit Sharing |
| ABT | Aichi Biodiversity Target |
| ADB | Asian Development Bank |
| AF | Additional Finance |
| ASEAN | Association of South East Asian Nations |
| BCC | Biodiversity Conservation Corridors Project |
| BCCP | Biodiversity Conservation Corridors Project |
| BCI | Biodiversity Conservation Corridors Initiative |
| CAWA | Climate Adaptation in Wetland Areas of Lao PDR |
| CBD | the Convention on Biological Diversity |
| CBI | Community Biodiversity Investments |
| CC | Climate Change |
| CITES | Convention on International Trade in Endangered Species of Wild Fauna and Flora |
| CLiPAD | Climate Protection through Avoided Deforestation |
| CR | Critically Endangered |
| CSO | Civil Society Organization |
| CTA | Chief Technical Advisor |
| DAFO | District Agriculture and Forestry Office |
| DEQP | Department of Environmental Quality Promotion |
| DNS | Dongdok Nature Society |
| DOF | Department of Forestry |
| DOFI | Department of Forest Inspection |
| DONRE | District Office of Natural Resource and Environment |
| DWR | Department of Water Resource |
| EIA | Environmental Impact Assessment |
| EN | Endangered |
| EPF | Environmental Protection Fund |
| ESIA | Environmental and Social Impact Assessment |
| EU | European Union |
| FALUPAM | Forest and Agriculture Land Use Planning, Allocation and Management |
| FAO | Food and Agriculture Organization of the United Nations |
| FCPF | Forest Carbon Partnership Facility |
| FDI | Foreign Direct Investment |
| FIP | Forest Investment Programme |
| FIPD | Forest Inventory and Planning Division |
| FLEGT | Forest Law Enforcement Governance and Trade |
| FPCF | Forest Carbon Partnership Facility |
| FSC | Forest Stewardship Council |
| GDP | Gross Domestic Product |
| GEF | Global Environment Facility |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit |
| GIS | Geographic Information System |
| GMS | Greater Mekong Sub-Region |
| GoL | The Government of Lao PDR |
| HNN | Hin Nam No |
| IAS | Invasive Alien Species |
| IBAs | Important Bird Areas |
| IDA | International Development Association |
| IEE | Initial Environmental Examination |

| | |
|---------|---|
| INGOs | International Non-Government Organizations |
| IO | International Organizations |
| IRRI | International Rice Research Institute |
| ISP | Integrated Spatial Planning |
| IUCN | the International Union for Conservation of Nature |
| IWRM | Integrated Water Resource Management |
| JICA | Japan International Cooperation Agency |
| KfW | Kreditanstalt für Wiederaufbau (German Development Bank) |
| KKN | Khao Kai Noi |
| Lao-WEN | Lao Wildlife Law Enforcement Network |
| Lao PDR | Lao People's Democratic Republic |
| LDC | Least Development Country |
| LENS2 | Second Lao Environment and Social Project |
| LFNC | Lao Front for National Construction (Lao: Neo Lao Sang Xat) |
| LMB | Lower Mekong Basin |
| LMDP | Land Management & Decentralized Planning |
| LWU | Lao Women's Union |
| MAF | Ministry of Agriculture and Forestry |
| MDGs | Millennium Development Goals |
| MEM | Ministry of Energy and Mines |
| METT | Management Effectiveness Tracking Tool |
| MoICT | Ministry of Information, Culture and Tourism |
| MoES | Ministry of Education and Sport |
| MoNRE | Ministry of Natural Resources and Environment |
| MoST | Ministry of Science and Technology |
| MPI | Ministry of Planning and Investment |
| MRC | Mekong River Commissions |
| NAFRI | National Agriculture and Forestry Research Institute |
| NBCAs | National Biodiversity and Conservation Areas |
| NBSAP | National Biodiversity Strategy and Action Plan |
| NEPL | Nam Et-Phou Louey |
| NGOs | Non-Government Organizations |
| NPAs | National Protected Areas |
| NR | National Report |
| NRE | Natural Resources and Environment |
| NSEDP | National Socio-Economic Development Plan |
| NT | Near-Threatened |
| NTFPs | Non-Timber Forest Products |
| NUDP | Northern Uplands Development Programme |
| NUoL | National University of Lao PDR |
| ODA | Official Development Assistance |
| PA | Protected Areas |
| PAW | Protected Areas and Wildlife |
| PAFO | Provincial Agriculture and Forestry Office |
| PBSAP | Provincial Biodiversity Strategic Action Plans |
| PES | Payment for Environmental Services |
| PFA | Production Forest Areas |
| PICE | Policy and Institutional Capacity Enhancement |
| POFI | Provincial Office of Forest Inspection |
| PoNRE | Provincial Office of Natural Resources and Environment |
| PRAP | Provincial REDD+ Action Plan |
| ProCEED | Promotion of Climate related Environmental Education |

| | |
|--------|--|
| REDD | Reducing Emissions from Deforestation and Forest Degradation |
| SDC | Swiss Agency for Development and Cooperation |
| SDGs | Sustainable Development Goals |
| SEA | Strategic Environment Assessment |
| SFM | Sustainable Forest Management |
| SIA | Strategic Impact Assessments |
| SMART | Spatial Monitoring and Reporting Tool |
| SUFORD | Sustainable Forestry for Rural Development |
| TABI | The Agro-Biodiversity Initiative Project |
| TWG | Technical Working Group |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| VPA | Voluntary Partnership Agreement |
| VU | Vulnerable |
| WB | World Bank |
| WCS | Wildlife Conservation Society |
| WEN | Wildlife Law Enforcement Network |
| WMPA | Watershed Management Protection Authority |
| WWF | Worldwide Fund for Nature |

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SECTION 1: INTRODUCTION

The Lao People's Democratic Republic (Lao PDR) is a historically, culturally and environmentally rich country with a very high diversity of landscapes, ecosystems and cultures. The Lao PDR has, in comparison to its surrounding neighbors, a relatively low population density and corresponding lower rate of natural resource exploitation. This combination means that Lao PDR is one of the most biodiversity-rich countries in Southeast Asia. Over the last 30 to 40 years Lao PDR has undergone significant economic reform and development and has risen in development status from being classified as a Least Developed Country to a lower middle-income country. Since 1990 the UN Human Development index for Lao PDR has risen 50% from 0.4 to 0.61¹. The GNI per capita has risen from \$US 280 in 1990 to \$US 2270 in 2017².

However, this increasing economic development during the latter half of the 20th Century also meant there were rapid declines and increased exploitation of natural capital such as wetlands, rivers and water resources and forests, forest resources and wildlife. Although the Lao PDR is still rich in natural resources, its biodiversity has been negatively impacted by developments, particularly resulting from private sector investment, including agricultural expansion, forest extraction, mining, as well as infrastructure and hydro dam construction. This loss continues even though the Government of Lao PDR took a range of actions in the 1980s and 1990s to address biodiversity conservation needs, by enacting laws and decrees and establishing a protected area system.

1.1 Actions by Lao PDR under the Convention for Biodiversity

In 1996 as part of the response to this loss of biodiversity the Government of Lao PDR acceded to the **Convention on Biological Diversity (CBD)** also known as the **Rio Convention**. In its mission statement, CBD Parties originally committed themselves to more effective and coherent implementation of the three CBD objectives with the purpose of achieving a significant reduction of the current rate of biodiversity loss at the global, regional and national level by the year 2010, as a contribution to poverty alleviation and to the benefit of all life on earth. These agreements became known as the 2010 Biodiversity Commitments, for which a set of targets and indicators were later established.

In 2010, the tenth ordinary meeting of the parties to the convention (COP10) took place at Nagoya, Japan and recognized that achieving positive outcomes for biodiversity requires actions at multiple entry points. The new Strategic Plan for Biodiversity 2011-2020 (CBD COP decision XI/2) reflected this perspective by including 20 headline targets for 2015 or 2020, which are referred to as the Aichi Biodiversity Targets (ABT) and are organized under five strategic goals. Thus, it is required that each member country to set their own targets with the flexible framework. NBSAPs are the key conduit for implementing the Strategic Plan and achieving the ABTs at a national level. It is also required countries to prepare a national biodiversity strategy, and to submit national reports to the COP on measures taken to implement it, and the effectiveness of those actions in meeting the Convention's objectives.

As a Party to the convention and in compliance with Article 6 on the General Measures for Conservation and Sustainable use the GoL had agreed to prepare National Biodiversity Strategy and Action Plans as well as periodic National Reports to the CBD. The first Lao PDR NBSAP was published in 2004 and the Lao PDR has prepared two National Reports in

¹ <http://hdr.undp.org/en/2018-update>

² <https://data.worldbank.org/country/lao-pdr>

2010 and 2016. The 2nd NBSAP 2016 -2025) was released in 2016 and is in current effect (See Figure 1.1 for Timeline of LAO PDR actions for the CBD).

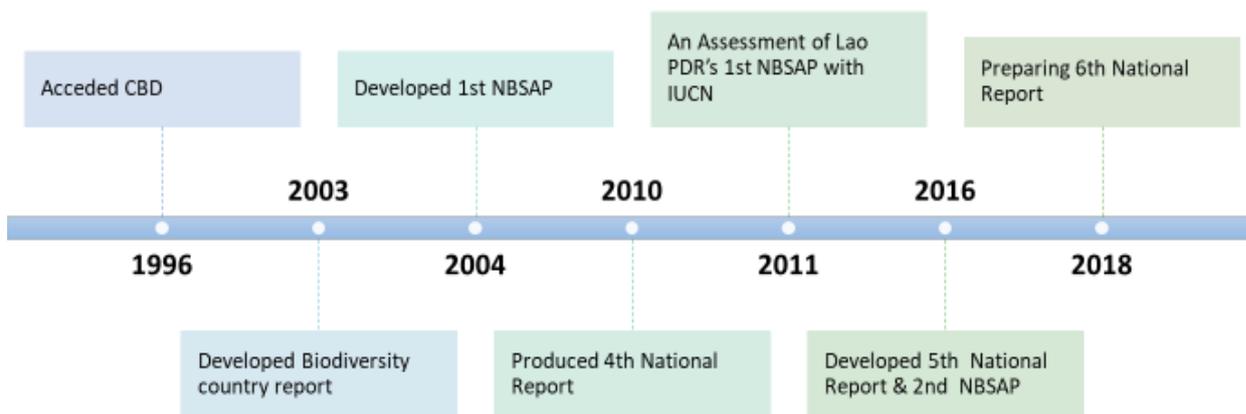


Figure 1.1: Key actions for CBD in Lao PDR since 1996

In decision XIII/2 at COP 13 the parties to the convention adopted guidelines, including reporting templates, for the sixth national report due 31 December 2018. The sixth national report for Lao PDR will, as per the agreement of the parties, provide a final review of progress in the implementation of the Strategic Plan for Biodiversity 2011-2020 and towards the Aichi Biodiversity Targets, including relevant national targets, based on information concerning the implementation of national biodiversity strategies and action plans and other actions taken to implement the Convention. This 6th NR was prepared by Ministry of Natural Resources and Environment (MoNRE) with support provided by UNDP Lao PDR.

1.2 The 1st NBSAP, 5th National Report and the NBSAP 2016 to 2025

The Lao PDR's First NBSAP was approved in 2004 and laid out an action plan to 2010 and a national strategy to 2020. The NBSAP 2016-2025 consisted of 3 parts. Part I 1 was an assessment of the current situation; Part II was a description of the Strategy and Part III is the National Action Plan. The 5th National Report was submitted to convention in 2016 and reported that:

“This report presents that, behind these direct drivers of biodiversity loss, there are a number of indirect drivers that interact in complex ways to cause human-induced changes in biodiversity which involve demographic, economic, socio-political, as well as cultural and religious factors”.

The Goal of the First National Biodiversity Strategy and Action was:

Maintain the diverse biodiversity as one key to poverty alleviation and protect the current asset base of the poor

To realize this Goal seven Main Objectives were proposed:

1. Identity important biological diversity components and improve the knowledge base
2. Manage biodiversity on regional basis, using natural boundaries to facilitate the integration of conservation and utilization-oriented management
3. Plan and implement a biodiversity specific human resource management program
4. Increase public awareness of and encourage participation in sustainable management of biodiversity
5. Adjust national legislation and regulations and harmonize with MEAs
6. Secure the NBSAP implementation

7. Promote country needs driven international cooperation.

To deliver these seven objectives, seven roughly equivalent Programs were developed (1) Scientific Data and Biodiversity Knowledge Development; (2) Biodiversity Management; (3) Human Resource Development Institutional; (4) Public Awareness and Involvement; (5) Institutional and Legal Frameworks; (6) NBSAP Implementation and (7) International Cooperation.

For each Program there were several broad Objectives. These were intended to guide planning and implementation and were fulfilment of these objectives was expected to realise by 2020. To begin work towards meeting these objectives the NBSAP proposed an interim work program of Actions out to 2010. In all there were 27 Program Objectives with 203 actions outlined in the document.

1.2.1 Reviews of the progress of the 1st NBSAP

In 2011, the IUCN published an assessment of the 1st NBSAP summarising the implementation status per objective and per action under each of the seven programmes. The main conclusion was that significant progress had been made across a range of areas, including biodiversity research, the recording of local knowledge, the expansion of NPAs, the implementation of management plans in a few key NPAs, the drafting of a Biosafety Law, the expansion of ecotourism activities, improved land use planning and land allocation, Ramsar accession, and stricter EIA/ESIA regulation; major achievement has been reached on international cooperation, particularly on the participation of the Lao PDR to multilateral environment agreements. This detailed assessment indicated that key areas of progress in NBSAP implementation included the following:

- Biodiversity research;
- Recording of local knowledge;
- Expansion of NPAs;
- Implementation of management plans in a few key NPAs;
- Drafting of a Biosafety Law;
- Expansion of ecotourism;
- Land Use Planning and land allocation;
- Ramsar accession;
- Stricter EIA decree

However, the report noted that in many areas there had been little progress. In particular the report highlighted that there was significant under achievement in key areas such as improving human resource capacity and biodiversity management, including efforts to ensure that social and economic benefits from the use of natural products originating from the Lao PDR accrue to the nation.

Key examples of limited progress included the following:

- The majority of NPA lack resources and do not have management plans;
- Lack of work on Access and Benefit Sharing;
- Lack of enforcement of EIA/ESIA laws since many concessions go ahead despite Negative impacts on surrounding environment;
- Biosafety Law not yet passed;
- Limited concerns about environmental sustainability in Land Use Planning and allocation;
- Restricted use of the “polluter pays principle” and, limited visible progress in creating Green Cities.

The report highlighted that although there had been several important and successful projects it was difficult to estimate the long term or cumulative impacts on biodiversity conservation as there seemed to be a lack of institutional direction and integration that allowed a longer term and coordinated program of action. This was further reinforced by the finding that most projects were donor driven. The report recognised that there were two key issues that drove this apparent lack of a consistent institutional approach to biodiversity conservation. These were:

- Significant capacity constraints in terms of (institutional) funding and institutional capacity and
- The 1st NBSAP did not provide any indicators or assign specific government departments and institutions to be responsible for implementing each action and monitoring progress. Nor did it outline a monitoring plan

In 2015 both the 2nd NBSAP and the 5th National Report were completed. The second NBSAP was approved in late 2105 and was based on the 2011 review. The 5th National report was completed later in the same year and was not used as a basis for the 2nd NBSAP. As such the 5th NR was the final assessment of progress on the 1st Lao PDR NBSAP.

In the final review of the 1st NBSAP the 5th National Report, completed in 2015, found that of the seven Programs only one, Program 7 International Cooperation, could be considered to have been largely completed. Five of the programs were considered partially achieved and that of significant concern -Program 6 NBSAP implementation had not had any significant achievement. Of the 27 Objectives 23% were substantially completed, 61% had partial completion and 4 or 16% had made no real progress. In terms of the Action ament to be completed by 2010, by 2015 61 were substantially complete or with significant progress and 26 had either not been acted on or had had made no measurable progress.

The 5th NR identified a number of key bottlenecks in the implementation of the 1st NBSAP, including the following:

- 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

In terms of achievements and progress under the 1st NBSAP the 5th NR noted the following:

- Some progress on the mainstreaming of biodiversity via the creation of the Ministry of Natural Resources and Environment (MoNRE), the establishment of the Natural Resource Management and Environment Sector Working Group (SWG) in 2012, and some integration of biodiversity into the Five-Year National Socio Economic Development Plans (NSEDP).
- On the progress towards the 2020 Aichi biodiversity targets,
 - there were strong efforts towards raised awareness of environmental issues and the values of biodiversity,

- Improvements have been made to the legal framework to include biodiversity values into sector strategies, policy, and legislation.
- In terms of urban planning and improved land use planning, there have been positive efforts made towards developing criteria for sustainable urban areas and a National Master Land Use Plan,
- In Agro-biodiversity there have been a number of positive initiatives including Provincial regulations on biodiversity conservation corridors, and the adoption of forest and land use planning, allocation and management (FALUPAM), as well as Agro-biodiversity being integrated in the Uplands Development Strategy and 5 year plans of PAFOS, and DAFOs.
- There are a number of initiatives implemented which promote the conservation and sustainable use of biodiversity, including those which support livelihood development of local people around protected areas, steps which have promoted organic agriculture, regulations around the timber trade and mining industries, NTFP management, as well as better water resource management.
- The GoL has implemented a number of actions to improve forest management, forest law enforcement, and improved protected area management
- The establishment of research projects into fish species and fisheries, which have informed fishery management practices and aimed at preventing fishery declines.
- Research has identified current invasive plant and animal species that are posing threats to natural and agricultural landscapes, and control measures and activities for some of these species have been formulated. Research is being developed which focus on risks and impacts of pesticide use in agriculture. Integrated Pest Management has also been trialled in parts of the country with the view to optimize the use of local biodiversity, including natural pest enemies, organic fertilizers, and bio- insecticides.
- Measures have been taken to protect ecosystems, particularly in northern Lao PDR (e.g. Xiengkhouang, Houaphanh, and Luang Prabang Provinces), including herbicide awareness and management programs, the establishment of fish conservation zones, and incentives to link local livelihoods with ecosystem health.
- Some improvement in sustainable financing via the Establishment of the Environment Protection Fund (EPF) which complements the Forest and Forest Resource Development Fund, other schemes also provide the potential for financing conservation through various payments for forest environmental services initiatives.
- A number of steps have been implemented in the Lao PDR since it ratified the Nagoya Protocol in September 2012; legislation has been enacted to harmonize with the international treaty of Access and Benefit Sharing (ABS) from the use of genetic resources.
- On the contribution to the Millennium Development Goals (MDG), from the information compiled from several MDG Progress Reports, MDG reviews, and the United Nations Development Assistance Framework 2012-2016 report, it can be concluded that the MDG for Goal 7 to ensure environmental sustainability has made a positive start in terms of institutions and processes, but is not currently on track to achieve its targets

1.2.2 The 2nd NBSAP 2016 to 2025

Work to prepare a 2nd NBSAP began in 2011 to coincide with the end of the 2005 – 2010 Action planning period of the 1st NBSAP. However due to a number of changes in

government structure this was not completed until 2015. It is important to note that Lao PDR deliberately set out for this NBSAP 2016-2025 to be independent of the 1st NBSAP but be built on the gains and lessons learned from the 2001 IUCN reviews of the National Biodiversity Strategy to 2020 and Action Plan to 2010. It does not however, use the information from the final review of the 1st NBSAP from the 5th National Report nor does it provide a detailed analysis of the changes in national priorities and targets from the 1st NBSAP.

Significant efforts were made during the preparation of the 2nd NBSAP to ensure that the development process was inclusive, transparent and incorporated a wide range of viewpoints. To do this the NBSAP was developed by 8 Working Groups that included 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

The overarching goal of the 2nd NBSAP was intended to be guided by the following vision statement

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.

The Goal of the 2nd NBSAP for the period 2105 to 2026 was 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.

To give a framework for implementing this vision and developing objectives and actions within the NBSAP nine key principles were proposed:

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.

The 2nd NBSAP also included three key objectives to support the goal which are also aligned to the global goals for biodiversity:

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.

Similarly, to the 7 programme areas of the 1st NBSAP's the 2nd NBSAP includes Five key strategies. However, the 2nd NBSAP recognised that there are significant overlaps and cross cutting issues between these key strategies (Figure 1.2). The five strategies are

- STRATEGY 1: Protect the Country's diverse and economically important Ecosystems including the Species and Genetic Diversity
- STRATEGY 2: Integrate the Value of Biodiversity to Socio-Economic Decision Making to Ensure Sustainable Use and Funding.
- STRATEGY 3: Strengthen the knowledge base for strategic decision making
- STRATEGY 4: Inspire and Enable actions through better Communication, Education and Public awareness.
- STRATEGY 5: Enable effective preparation and implementation of plans and programs.

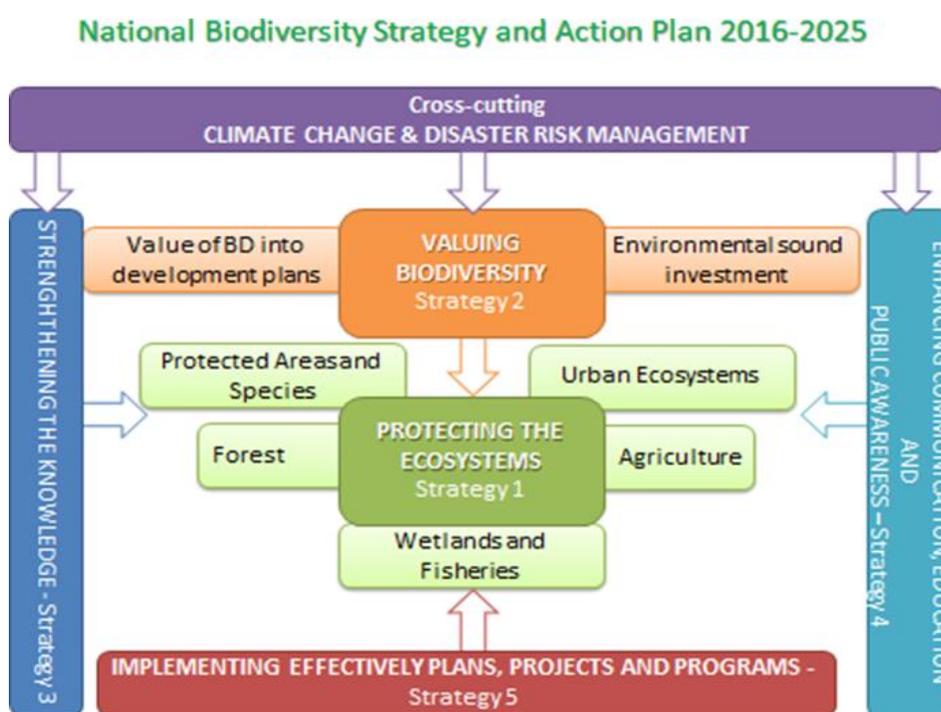


Figure 1.2: Key strategies of 2nd NBSAP 2016-2025

These five strategies were further divided into sub strategies and for each sub strategy National Targets were developed for each of the five strategies. In total there are 69 National targets across the five strategies. These 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 consider Lao PDR priorities and its commitments to the Aichi targets set by the CBD in 2010.

1.2.3 Highlight Projects and Programs Relating to the NBSAP 2016-2025

An analysis of the progress being made towards meeting the strategic objectives and the 69 Targets outlined in the NBSAP 2016-2025 is given in Section 2 of this report. The following however provides some detail and analysis of seven case studies that give an overview of the problems facing Lao PDR in conserving biodiversity and the types of responses that have been enacted within the country.

The Six Case studies are:

- The Core Environment Program and the Biodiversity Conservation Corridors Project (BCCP) of Lao PDR
- Capacity Building on Biodiversity Conservation and Management in Lao PDR through the Second Lao Environment and Social Project (LENS2)
- Promoting of the Hin Nam No National Protected Area (NPA) to a Natural World Heritage Site?
- Measures and Actions within Lao PDR to Reduce Forest Loss and Degradation
- Sustainable Forest and Land Management in the Dry Dipterocarp Forest Ecosystems of Southern Lao PDR
- The Globally Significant Agrobiodiversity of Lao PDR and The Agrobiodiversity Initiative (TABI)

Case Study 1: The Core Environment Program and the Biodiversity Conservation Corridors Project (BCCP) of Lao PDR

The importance of Lao PDR Biodiversity Conservation Corridors

The **Greater Mekong Subregion**, (GMS) is a trans-national grouping of six nation states supported by the Asian Development Bank (ADB). The subregion includes all the countries that lie within the Mekong River Basin including Cambodia, China (Yunnan Province and Guangxi Zhuang Autonomous Region), Lao PDR, Myanmar, Thailand, and Vietnam. The subregion is both home to more than 300 million people and large natural areas of international conservation significance. The region is also undergoing substantial and rapid economic development, which in turn is driving environmental degradation and placing significant stress on the remaining biodiversity.

In 2006, ADB, in collaboration with the six member countries, set up the Core Environment Programme and Biodiversity Conservation Corridors Initiative (CEP-BCI). The aim of the CEP-BCI Project is to support the Greater Mekong Sub-region (GMS) countries to address the emerging environmental problems arising due population pressures and rapid economic transformation and to protect the most important biodiversity conservation landscapes in the sub-region.

The objective of BCI Project is to address fragmentation of the biodiversity rich forest landscapes of southern Lao PDR. This fragmentation is impairing the ability of the forested

landscapes to conserve biodiversity and to provide critical ecosystem services necessary for sustaining local livelihoods as well as investments in hydropower, transport, water and food-security enhancing sectors

The first phase of the Lao PDR CEP-BCI was coordinated by the Water Resources and Environment Agency (WREA) and included establishment of corridors across 11 villages connecting the Xepian and Dong Hua Sao National Protected Areas (NPA) in Champasack province in southern Lao PDR.

The first phase of CEP-BCI started in 2006 and operated until 2010. Due to the successes of the first phase, ADB continued to financially support the second phase which called “Biodiversity conservation corridors”

ADB signed a grant agreement [Grant 0242 Lao (SF)] with the Lao PDR government on 14 February 2011 wherein ADB agreed to provide \$20 million under ADB-GMS funding to the Lao PDR government for the Lao component of the Greater Mekong Sub-region Biodiversity Conservation Corridors (BCC) Project. The grant became effective on 14 April.

The Project objective is to establish sustainably managed biodiversity corridors involving 5 districts in the three provinces of Champasak, Attapeu and Sekong in Lao PDR. Included under the Project were 66 villages-21 villages in Champasak, 22 in Attapeu and 23 in Sekong.

On 18 October 2016, ADB signed a further grant agreement [Grant 0488 Lao (SCF)] for additional financing (AF) of \$12.84 million funded under the Forest Investment Program to support Lao PDR’s REDD+ Strategy. Implementation of activities under the AF is in 2 districts-Dak Cheung in Sekong and Phouvong in Attapeu involving an additional 10 villages and 7 villages in each district respectively.

With the additional financing the completion date of the Project was extended from March 2019 to December 2019 and a request for a further extension of the Project (for the BCC-AF components) until December 2021 was agreed by ADB in March. The closing date for the Grant will be 30 June 2022, or 6 months after completion of field activities.

The Project has the following outputs:

Output 1: Strengthening of Institutions and Communities for Biodiversity Corridor Management. (a) Strengthening the capacity of the national, provincial, and district levels for corridor planning and management; and (b) Providing protection and sustainable use policies, guidelines and/or local regulations for enforcing biodiversity corridor management plans.

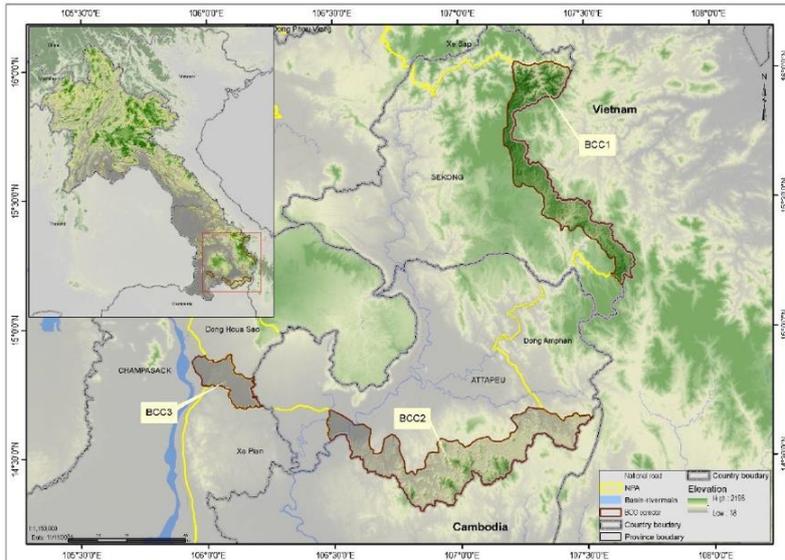
Output 2: Restoration, Protection and Sustainable Management of Biodiversity Corridors. Carrying out (a) forest restoration, (b) natural forest replanting, (c) enrichment planting, and (d) non-timber forest products planting and agroforestry.

Output 3: Improvement of Livelihoods and Provision of Small-Scale Infrastructure Support. (a) Establishing village development funds in each project village (b) Completing small infrastructure projects in each project village.

Output 4: Project Management and Support Services. Providing support services and building capacity on project administration, procurement, financial management, progress reporting, impact monitoring, social and environmental safeguards and contract management.

The additional financing from the Forest Investment Program (FIP) is financing a range of measures for: (i) Reducing carbon emissions from reducing deforestation and forest degradation; (ii) Maintaining carbon reservoirs by improving forestry conservation activities to help avoid emissions (such as fire management); (iii) Increasing carbon removals by enhancing carbon sequestration through afforestation, reforestation and forest restoration; introducing sustainable forest management (SFM) techniques; modifying livelihoods and land use systems; and promoting

(1) The project originally included 69 villages which are now reduced to 66 due to the government’s policy to combine small villages. The last village to move was Ban Tangpeung,



Dak Cheung; (2) agroforestry on degraded land; and (3) building capacity by improving awareness and knowledge among stakeholders.

The entire project is still named BCCP but to distinguish between the two funding sources, the original BCCP component is called BCC-GMS (“BCC”) with the additional funded components of BCCP called BCC-FIP (“FIP”). The Project’s financing is provided almost entirely by ADB. The

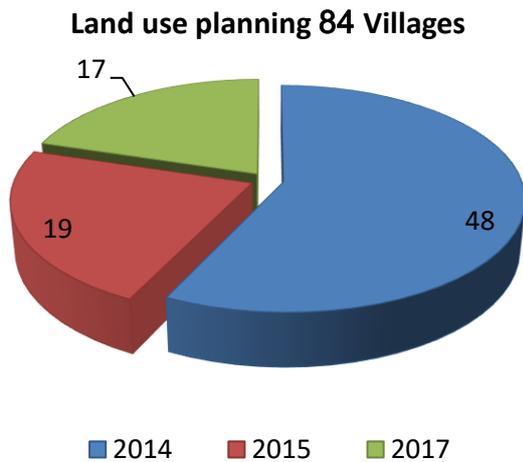
financing and investment plan under the grant agreements for BCC-GMS. The Executing Agency for the Project until 19th August 2016 was the MoNRE but is now the MAF. Correspondingly, implementing agencies were the Provincial Office of Natural Resources and Environment (PoNRE) in Champasak, Attepeu, and Sekong provinces but since 19th August 2016 are now the Provincial Agriculture and Forestry Offices (PAFO) in the respective provinces. In August 2017, the DFRM was disbanded with the staff and projects reassigned within a restructured Department of Forestry. BCCP was attached to the Division of Protected Area Management

Biodiversity Conservation Corridors Project (BCCP)

There are three corridors in the BCCP including BCC1, BCC2 and BCC3. Biodiversity assessment was undertaken in each of the three corridors. The result showed that primary forests accounting for 82.3% of the total area reserved within the three BCCs (4,153sq.km). Among these areas, evergreen forests are the most common forest type, representing approximately 60% of the total area, followed by mixed deciduous forest (12.7%), dry dipterocarp forest (9.1%), and mixed hardwood-conifer forest (0.5%).

BCC1: is located within the southern Annamite Mountains in terrain between 437 – 2,182 meters above sea level. One large tract of forest that lies largely within the BCC1 is that on and around Phou Houay Pale watershed, which is close to and contiguous with, extensive forest in Xe Sap NPA and near the Lao-Vietnam border.

BCC2: is in the far south, bordering Cambodia and covers terrain from the foothills to - 1,451 m a.s.l. Within this area there is one large tract of forest which is adjacent to the extensive forest in Dong Ampham NPA to the north-east and near the Lao-Cambodian border.



BCC3: was part of phase one of the project and connecting with Xepiane and Dong Hua Sao NPAs. This area is mostly in the lowlands, foot slopes and ranges between 86-240 m a.s.l.

Although the BCC project was increased its effort to protect and conserve biodiversity in the corridors , there were many threats the project faced including mining, hydropower dam development, converting the forest land to agricultural land, illegal logging and tree cutting and wildlife poaching and trading.

The Relationship of BCC to the Implementation of the Lao PDR National Biodiversity Strategy and action Plan

The implementation of the Lao PDR BCC plays a key role assisting Lao PDR meet some of its National Targets from the National Biodiversity Strategy and Action Plan. In particular: **National Target 11 [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. And

National Target 12 [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.

The BCCP is developed village land use planning and village development plan in 84 villages to support local communities to conserve biodiversity and improve their livelihoods through the village conservation agreement between the project and local communities.

Land use planning: 84 plots of village conservation and protection forests with a total area of 352,940 ha was set aside in the three BCCs, of which 12 plots of conservation forests with 60,714 ha and 19 plots of protection forests with 61,621 ha in BCC1, 18 plots of conservation forests with 45,068ha and 9 plots of protection forests with 100,490ha in BCC2, 12 plots of and 23 plots of conservation forests with 84,884 ha and 26 plots of protection forests with 162 ha in BCC3. In addition, land use certificates for the conservation forest and the protected forest were awarded to the village authorities.

Forest rehabilitation and protection:

7434 ha was afforested, of which 1795 ha was tree planting on the barren land and 5639 ha was assisted natural regeneration.

84 villages patrol team was organized, trained and mobilized to fight against wildlife crime in the corridors in cooperation with law enforcement agencies. Tablets were used by the patrol teams to record data and detect deforestation through lab planet.

Livelihoods improvement and small-scale infrastructure development: Village development fund was organized in each village. The project allocated US\$5000 to each village as the seed fund. Villagers should organize the production group in order to access to the fund. Village management and village inspection fund committees were organized and trained. 316 production groups have accessed to the fund and conducted activities to improve their livelihoods. 1139 people benefit from the fund of which 68%, 61% and 48% are women, ethnic group and poor people respectively. 65 infrastructure sub-projects were supported by the project. Infrastructure category included: road, irrigation, paddy field development, school, sanitation, water supply, village meeting hall and village patrol station.

The role of BCC in meeting the Aichi Targets of the Convention for Biological Diversity

The Lao PDR BCC has had a major role in assisting Lao PDR to work towards meeting 6 of the 20 Aichi Targets.

ABT1: Awareness of biodiversity values:

Biodiversity conservation awareness have been conducted through REDD training at national, provincial, district and village levels. Apart from this, regular biodiversity conservation awareness rising has been conducted at the local level by (1) meeting with local community on illegal logging and tree cutting, poaching and wildlife trade, (2) organizing events such wildlife conservation day and tree planting day and (3) raising awareness on preventing forest fire.

ABT2: Integration of biodiversity values:

Provincial regulations on biodiversity conservation corridors in Attapeu, Champasak, and Sekong were developed. Besides this, village land use regulation was developed in each village in the corridors.

ABT4: Sustainable use of Natural Resources and ABT 11: Protected areas Managed Effectively

Biodiversity conservation awareness rising among the public and strict law enforcement in combination with livelihoods improvement for the vulnerable people are the main strategic actions of the project to ensure that forest resources are protected for maintaining ecosystem function to provide goods and services.

ABT 14: Resilience enhanced; ecosystems restored

Afforestation in the barren land and assisted natural regeneration in the degraded forest conducted by the project including protection of the forest and wildlife resource can be contributed to the resilience of ecosystem services to the climate change.

In 2017, Forest rehabilitation has been undertaken on more than 9,000 ha. A village development fund (VDF) has been implemented and managed by the women union of the village, district and the province, The VDF fund has increased from \$341,647 to \$368,919. A model of sustainable agriculture production has been established in 21 villages for poultry and pig rising, 18 for goat raising, for fish rising in 5 villages, an additional 23 villages have had assistance with r crop and vegetable framing.

ABT 15: Ecosystem Resilience and the Contribution of Biodiversity to Carbon Stocks Has Been Enhanced,

Maintaining existing forest areas through patrolling and law enforcement couples with forest rehabilitation can maintain and enhance carbon stock in the corridors while preventing forest fire can also contribute to the reduction of carbon emission. Furthermore, improve livelihoods of local communities through agroforestry whereby organic carbon can be stored in soil while atmospheric carbon dioxide can be decreased. In summary, effective management of the corridors can be contributed to ecosystem resilience to the climate change.

Carbon sequestration assessment activities in the context of emission reduction for two watershed areas and two districts in Xekong and Attapeu Province is under feasibility study

ABT19: Knowledge improved, shared, transferred

Biodiversity assessments through identified the wildlife habitat suitability and connectivity was conducted. Priority for habitat suitability and connectivity was mapped and discussed with stakeholders for protection and rehabilitation.

Using tablet connecting with satellite (Planet Labs) to record the patrolling data and to monitor forest logging was applied by the village patrol teams. This technology was also used by Xepian National Protected Areas.

Case Study 2: Capacity Building on Biodiversity Conservation and Management in Lao PDR through the Second Lao Environment and Social Project (LENS2)

Establishing a funding allocation and mechanism for biodiversity conservation in Lao PDR

In 2005 LAO PDR with assistance from the World Bank and the GEF established the Environmental Protection Fund (EPF), a financially autonomous Lao organization created in order to finance and support environmental initiatives. The intention of the EPF was to establish a fund and process where Government departments or agencies, and local Non-Profit Associations, are encouraged to formulate their own environmental ‘subprojects’ and apply for funding from the EPF.



Since its inception in 2005, the EPF has been supported via the first and second Lao Environment and Social Projects (LENS I & II). The first LENS project, which ran between 2005 and 2013, funded more than 150 subprojects through the Environmental Protection Fund. In 2014 the Protected Areas and Wildlife (PAW) project was established with a budget of US\$ 23.83 million equivalent. Originally for the PAW project the overall objective of the project was *to strengthen the participatory management system of the National Protected Areas (NPAs) conservation and for enforcement of wildlife laws*. In 2015 PAW was

incorporated into the LENS II project. In this iteration the scope of the project was expanded to also cover watershed protection forests, build the capacity of the national government to manage and enforce environmental and social legislation. Transition to LENS2 brought additional financing of US\$ 15 million equivalent. Altogether, now US\$ 38.83 million equivalent is singularly financed under LENS2 project¹. The project is financed by the International Development Association (IDA) and the GEF as well as contributions from the government of Lao PDR.

The objectives of LENS II are to “To help strengthen selected environmental protection management systems, specifically for protected areas conservation, enforcement of wildlife laws, and environmental assessment management”. The LENS2 project supports Policy and Institutional Capacity Enhancement (PICE) and Community Biodiversity Investments (CBI) financing windows, as well as building the EPF capacity and support project administration.

There are three main components of the LENS funding program:

- Component 1 (USD 14.4 million): National institution development and capacity building to improve the capacity and collaboration of national and provincial public institutions to design and monitor national and regional natural resources, environmental, and social policies.
- Component 2 (USD 20.6 million): Management of wildlife and protected areas, to improve the capacity and collaboration of local public institutions, civil society and communities to manage protected areas and enforce wildlife laws.
- Component 3 (USD 6.83 million): Project administration and EPF capacity building. This component seeks (a) to deliver the Project’s outputs, and (b) to help EPF become a significant and recognized player in environment financing capable to deliver and monitor sub-projects throughout the country.

LENS II Capacity building on biodiversity conservation with sub-projects

In total 43³ sub-projects have received funding from LENS2, Twenty-six projects have been funded under the PICE window and 17 are receiving funding via the CBI window. To date 5 projects from the CBI window and 1 project from the PICE window have been successfully completed with the reaming 36 projects in various stages of implementation.

In general, projects from both funding windows are either focused on *direct support to build the capacity on biodiversity conservation or related environmental & social capacity building*. For PICE window projects these are both focused and implemented at a national government level or at a provincial level, whilst CBI window projects are Provincial or locally based (see Table 1). Within the PICE window, the majority (19) are being implemented by central government organizations with a further 7 under the provincial management of Hua Phan, Xiengkhouang, Louangphabang, Vientiane, Bolikhamxay, Khammouane and Savannakhet provinces. For PICE the majority of projects (17) are targeted at providing capacity building on natural resources and environment related issues with 9 projects directly focused on enhancing capacity on biodiversity conservation and management (protected area, protection forest and wildlife),

³ See <https://laopf.org.la/projects/lens2-projects/>

| Financial window | Direct support to build the capacity on biodiversity conservation | | Related environmental & social capacity building | | Total (Project) |
|------------------|---|------------|--|------------|-----------------|
| | National | Provincial | National | Provincial | |
| PICE | 8 | 1 | 11 | 6 | 26 |
| CBI | - | 17 | - | - | 17 |
| Total | 8 | 18 | 11 | 6 | 43 |

The Relationship of LENS2' sub-projects to support the implementation of the NBSAP and the ABT of the CBD

As the major source of internal funds for biodiversity and environmental capacity building the LENSII project plays a critical role in the implementation of a number of the national targets within the LAO PDR NBSAP. In particular:

National target 11 [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* **And National target 28 [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 and*

Under the CBI window there have been five successfully completed projects on Capacity strengthening for Management of Protected Areas (PAs) and Protection Forests (PFs), within the Bolikhamxay (BLX), Hua Phan (HP), Luang Prabang (LPB), Xiengkhouang (XK), and Khammouane (KM) Provinces. The project activities were prepared and implemented by the Provincial Forestry Sector in each province. Within these projects more than 200 agency staff has been trained in priority topics for protected area management and protection forest management. This included; several workshop seminars on conservation awareness and Training and distribution of laws and regulations on protected area and wildlife. The project also provided support for strengthening capacity of the District Office of Natural Resource and Environment (DONRE) offices and participation in NPA planning, management and monitoring.

Another sub-project at the provincial level managed by **the Provincial Agriculture and Forestry Office (PAFO)** includes a number of capacity building initiatives: (1). Sustainable Management of Nam Mouane – Nam Gnouang National Protection Forest, Upper Nam Mouane Watershed (*NM-NG NPF*) in BLX province; (2) Strengthening the management capacity of the Savannakhet PFRM as well as building local support for the enhanced protection of Dong Na Tard Provincial Protected Area (DNT-PPA); (3) Community-Based Management of Phou Meud-Phou San Kheuan Provincial Protected Area (PMPSK-PPA) of Vientiane Province. (4) Sustainable Management of the Nam-In Phouhinleckfai Provincial Protection Forest, Khammouane Province. (5) Strenthening the collaborative management of Nam Xam National Protected Area, Huaphanh Province; (6) Strengthening the collaborative management of Phoupheung-Phouphathoun-Tad Kuang Se Provincial Protected Forest, Luang Prabang; and (7) Strengthening Collaborative Management of Phousabot Pounghong National Protected Area, Xieng Khouang Province.

National target 13 [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.*

The sub-project on strengthening capacity of wildlife and aquatic law enforcement being implemented in each of the Provincial Office of Forest Inspection (POFI) within the BLX, KM and HP provinces are supporting the implementation of Lao Wildlife Law Enforcement Network (LAO-WEN) at the provincial and district level call P-WEN and D-WEN. All of these provincial sub projects have included numerous many capacity building and training activities.

National Target 23 [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.*

The project *Strengthening the capacity of the Watershed Management Protection Authority (WMPA) to effectively manage the NT2 Watershed and Nakai-Nam Theun NPA (NNT)* is aimed at improving the WMPA' management system by strengthening the bilateral cooperation between Lao PDR and Vietnam, especially at provincial and district levels. This cross-border cooperation is intended to promote greater transboundary protected area management and help prevent illegal wildlife poaching and illegal wildlife trade in the region.

There are 5 sub components of this project with sub component 3 *Research, monitoring and Evaluation*, under this sub component there are programs for:

- Biological monitoring design and staff capacity building.
- socio-economic assessment that measures the wealth levels of communities within the Nakai-Nam Theun watershed, Terrestrial mammals and bird monitoring for four main research areas (1) *Glyptostrobus pensilis* program: (in collaboration with University of San Francisco, Columbia University and Royal Botanic Garden Edinburgh); (2) Elephant survey (in collaboration with University of Missouri and Nam Theun Power Company); (3) Activities in collaboration with Saola Working Group; (4) Activities implemented by Project Anoulak: on Primate program, Environmental DNA program.
- Forest cover/land use monitoring. in 2017 forest loss assessment was conducted over an area of 3,500 sq. km,
- Monitoring of threats Key activities include; Installation and implementation Spatial Monitoring and Reporting Tool (SMART) software program, and training delivery on SMART uses. SMART is an information management tool designed to “measure, evaluate and improve the effectiveness of wildlife law enforcement patrols and site-based conservation activities.

Furthermore, the contribute also from the Institutional capacity building for PA and PF management and wildlife conservation project where draft NPA status report prepared, Master plan of NPAs ongoing develop, in total 11 NPAs guidelines have been prepared and discussed among project team members such as Collaborative management in NPAs, Zoning for conservation and Development in NPAs, Biodiversity monitoring in NPAs, etc. There is 3 NPAs fact sheet produced [Xe Pian, Na Kai Nam Theun, Hin Nam nor] and basic information of the NPAs from Savanakheth to Southern province have been collected [Dong Hua Sao, Xe Sap, Dong Ampham, etc.]. Dataset of NPAs is systematically checking the accuracy; also several activities are ongoing plan such as database for tracking investment in NPAs.

National target NT25 [4.1.2]: *Increased public awareness on the value of biodiversity among targeted stakeholder groups including those in 24 NPAs.*

The Constituency Building of Public Administration on Environment, Biodiversity and Wildlife Issues sub-project has a primary focus to build the Department of Public Relations capacity to disseminate protected areas and wildlife knowledge to civil servants and decision makers. This sub program has developed training courses for key civil servants on

biodiversity issues, Web content Management in 10 provinces, organized study tours and visits for focal points and has published 4 articles on sustainable PA, Wildlife, and Fisheries published in the administrator magazine and has news disseminated on radio system 3 times, and TV 4 times.

National Target NT26 [4.1.3]: *The value of biodiversity and its sustainable use is incorporated in formal and informal education programs.*

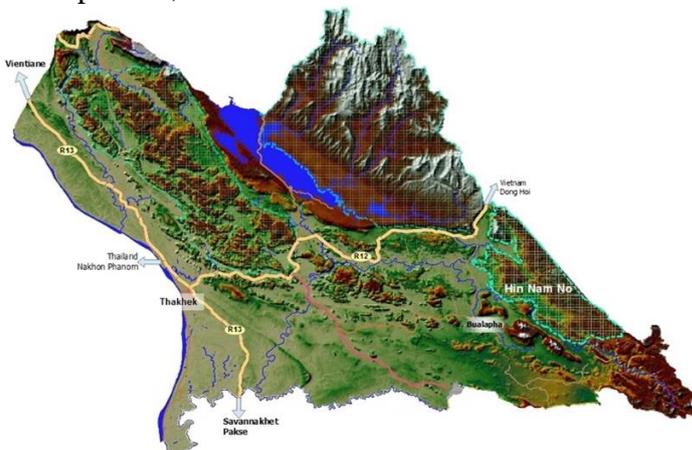
The sub-project: *Human Resources Development for Protected Area and Wildlife Management* managed by the Faculty of Forest Science, NUol has

- Provided 3 Short term training courses and produced a manual for PA Management, Wildlife Management, and Livelihood. 576 (164 females) people have been trained in the program.
- Provided opportunities graduate and undergraduate studies with a total 7 Students received scholarship and studying in Thailand and Lao PDR.
- Developed an Undergraduate Curriculum (Forest and Wildlife Protection Major) that is endorsed by the Ministry of Education and Sport (MOES), and currently available for student enrollment at the university, syllabus of 39-course subject developed.

Case Study 3: Proposal to list Hin Nam No National Protected Area (NPA) as Lao PDR first Natural World Heritage Site?

The significant values of Hin Nam No NPA

Hin Nam No NPA is situated in central Lao PDR, where the Central Indochina Limestone meets the Annamite Mountain Chain. It is situated against the border with Vietnam in the district of Bualapha, Khammouane Province. It encompasses 82,000 ha of a large, dissected karst plateau, which continues across the border into Vietnam where a large portion of the



contiguous Phong Nha - Ke Bang karst has been designated as a national park and Natural World Heritage site. In total, 11 major habitat types have been identified in Hin Nam No NPA, including 7 forest habitats, 2 wetland habitats, bare rock (or sparse, stunted forest on limestone) and cave habitats. The area is estimated to be 31% forested, with 20% of dense or mature forest. The area closest to the Lao-Vietnam border is mainly mountains. Phou

Chuang is the highest point (1492 m) in the property. <http://www.hinnamno.org/index.php/la>



Hin Nam No NPA is considered of outstanding universal value for the evolution of its complex and spectacular karst landscape:

The geologic history of the exposed rocks dates back to the early Carboniferous period (350 Ma), with the karst geomorphology evolving to the present

day. The Khammouane Formation, the 1,100 m thick principal limestone sequence, was formed during the middle Carboniferous to early Permian period. Morphogenetic evolution of the karst is the result of a complex tectonic history. The Indosinian orogeny occurred in the middle Triassic (247 Ma). This significant compression, uplift, and erosion episode affected much of Southeast Asia, bringing many carbonates into subaerial positions, and resulting in a prolonged karstification episode. The karst was subsequently buried under thick layers of late Triassic, Jurassic and early Cretaceous sandstones and shales. A new uplift began in the Paleogene (65 Ma), leading to large-scale erosion. As the limestone became progressively re-exposed karst evolution resumed in earnest. Indosinian karst landforms have been exhumed and rejuvenated and play a significant role in the evolution of the modern karst. <https://whc.unesco.org/en/tentativelists/6158/>.

The allochthonous water of the Xe Bang Fai River has cut a 7 km underground course through the limestone karst, creating one of the largest active river cave passages in the world. The active river passage averages 76 m in width and 53 m in height, with a maximum width of 200 m and a maximum height of 120 m. In addition to the size of the cave passages, the cave is superbly decorated with speleothems, including many large and beautiful stalagmites, flowstone draperies, cave pearls and gour (rimstone) formed in a cave.

Its variety of habitats that support high biodiversity, including a number of globally threatened species, endemic species and karst specialist species:

Hin Nam No contains 7 species of primate, 5 of which are globally threatened. The Red-shanked Douc Langur (*Pygathrix nemaeus*) and the Southern White-cheeked Gibbon (*Nomascus siki*) are charismatic 'flagship' species of Hin Nam No, and along with the Black Langur (*Trachypithecus hatinhensis*) are globally endangered. Hin Nam No harbors the largest and one of the last viable populations of these two endangered langurs in the world. Other charismatic species include 4 species of hornbill (*Bucerotidae*), one of which, the Rufous-necked Hornbill (*Aceros nipalensis*), is globally threatened. Kha Ngou *Laonastes aenigmamus* is endemic to central Lao PDR, with a range extension into neighboring Vietnam. The species was recognized as a new Family of mammals in 2005.

About 22 guardian villages with a total population of 8,000 people (2014) live around this National Protected Area, many of whom are ethnic minorities, such as Makong, Tri, Yoy, Phoutai, Kaleung, Vietic, and Salang/Kris (this ethnic group has only 28 families) (2005).

Main threats of Hin Nam No:

(1) Unsustainable utilization of non-timber forest products and fuelwood; (2) Hunting, snares and wildlife trade; (3) Poaching, illegal logging and weak enforcement of NPA regulations, and (4) Climate change are putting pressure on Hin Nam No's sensitive eco-system.

History of Hin Nam No Management:

- 1993 Hin Nam No was declared by Decree 164 of Prime Minister as NBCA or commonly understood NPA
- 1995 WWF funded socio-economic survey
- 1996 WCS and DOF conducted wildlife survey
- 1996-1998 WWF organized trans-boundary conservation meetings between Lao PDR and Vietnam, joint Lao-Viet survey of Hin Nam No NBCA in 1998
- 1999 WWF started assistance on land use planning in some village, supported some fund for livelihood development in 2003

- 2006 IUCN with Funded from LENS through EPF assisted GoL for land use planning revised
- 2008 IUCN assisted GoL in upgrading Hin Nam No to National Park
- 2009 IUCN assisted GoL developed co-management plan
- 2013-present Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ) through Protection and sustainable use of forest ecosystems and biodiversity (ProFEB), with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH technical assistance. <https://www.giz.de/en/worldwide/33708.html>
- 2016 Hin Nam No NPA is officially on the tentative list to become Lao PDR' first natural world heritage site.

Relationship of Hin Nam No NPA to the NBSAP implementation

The process of developing the proposal to list Hin Nam NPA as a World Heritage Site has a number of linkages to the implementation of the Lao PDR NBSAP.

NT11 [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:

The development of the Hin Nam No NPA Co-Management Plan 2016-2020, included the production of a co-management plan, co-management by laws and capacity development guidelines. Importantly, it is the first NPA in Lao PDR where villagers making their living from the natural resources provided by the NPA were directly involved and engaged in the deciding the sustainable use and protection of an NPA. This has resulted in the community being acutely aware of HNN importance and contributed to the planning and delineation of sustainable use and conservation zones within the HNN including the recognition of the financial contribution that tourism can make towards protection of biodiversity and sustainable local development).

The Hin Nam No NPA Co-Management Plan 2016-2020, Operational plan for 2018 also included processes and capacity building for effective monitoring and protection of biodiversity, and trainings for villagers. This involved training and assistance for:

- Capacity development of staff (1,075 training days) and villagers (2,090 training days) in 41 of the 46 identified priority needs
- Organizational development of the co-management system into working units and areas
- Increase in relevant research through national, regional and international researchers assisted by villagers
- Information toolkits including maps was developed and used for ecotourism activities such as Tham Namlot Xe Bangfai (The Xe Bangfai River, whose source is in the Annamite range between Lao PDR and Vietnam “loses” itself for 7 km through a giant tunnel beneath limestone karst mountains of Hin Nam No to find itself emerging again in a clear pool near Ban Nong Ping Village), Natural trails in Hin Nam No Trekking, Mu Gia Pass & Ho Chi Minh Trail
- Activities support for livelihood development on sustainable NTFPs harvesting, cropping and livestock rising.

NT13 [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:

The development of management programs for HNN included the use of a number of tools including SMART, Open Standard, Adaptive management, and Management Effectiveness Tracking Tool (METT) to better provide monitoring and protection of biodiversity. SMART was used to empower conservation managers with timely and accurate information, guide their strategy in the most effective manner, ensure accountability and good governance and motivate the staff and villagers for practical conservation efforts. Spatial information was developed and use for research, ecotourism maps, patrolling and wildlife monitoring with SMART.

NT17 [2.1.2]: Mainstream the Integrated Spatial Planning (ISP) in the development of cities and rural areas for sustainable utilization

The land use and management planning process developed for Hin Nam No has greatly improved the capacity for Lao PDR to conduct Integrated Spatial Planning. For example, Spatial information and data were analyzed for conservation planning purposes using 3D visualization, and Semi Automated Classification techniques, this included the use and analysis of Landsat 8 data, MODIS fire data, Finnmap, orthophotos, Google Earth data sets.

NT23 [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.

MOU at minister level between Lao PDR and Vietnam signed in 2018 (the Lao and Vietnamese governments signed a MOU, ensuring Vietnam's full support of the nomination of Hin Nam No National Protected Area as a transboundary World Heritage Site together with the already established natural UNESCO World Heritage Site known as Phong Nga Ke Bang (PNKB) National Park in Quang Binh, Vietnam. The latter shares a common border with Hin Nam No National Protected Area in Khammouane, Lao PDR.)

Under the newly signed MoU between Lao PDR and Vietnam, a number of points have been agreed for which both countries commit to support the nomination of Hin Nam No National Protected area as a transboundary World Heritage Site, connected to Phong Nga Ke Bang National Park in Vietnam.

Case Study 4: Sustainable Forest and Land Management in the Dry Dipterocarp Forest Ecosystems of Southern Lao PDR

The MAF, the DOF with funding from the GEF and in partnership with UNDP, is implementing the *SAFE Ecosystems Project* to protect the forest and conserve biodiversity and wildlife. This project targets the dry dipterocarp forest ecosystems in five districts of Savannakhet Province, which are recognized as being of national and global importance. The project started in May 2016 and is expected to run for 6 years until 2022. The total budget for the project is \$USD 12 million and government in-kind USD 14.2 million.

The objective of the project is to demonstrate sustainable land and forest management in the forested landscape of Savannakhet Province in order to secure the critical wildlife habitats conserve biodiversity and maintain a continuous flow of multiple ecosystem services including quality water provision, flood prevention, carbon storage and sequestration. The Project area covers around 193,526 hectares. Of this area 51.81% is dry dipterocarp forest, 10.83% is mixed deciduous forest, 9.19% is shrub or fallow land and the rest is other land use types (paddy, swamp, other agriculture & built up area).

The project has three main components. Component (1): Enabling policy environment and increased compliance and enforcement capacities, Component; (2): Sustainable landscape management demonstration, Component; (3): Developing and promoting diversification of incentive and financing sources.

Conservation value of the Dry Dipterocarp Forests

Conserving ecosystems like the dry dipterocarp forests in Savannakhet is essential, not only because they are home to a variety of wildlife and several endangered species, but they also regulate groundwater supplies by absorbing rainwater in tree roots and



leaves, reduce greenhouse gases and store valuable carbon, as well as stabilize slopes by binding soil into the ground. Additionally, the forests are important for local communities as they provide for a

diversified diet with non-timber forest products such as fruits, mushrooms and insects⁴.

The region is Known to contain local populations of species of conservation concern such as the Ong Mang [the Eld's Deer] (*Rucervus eldii*)/ (*Cervus eldii siamensis*). Ong Mang is an endangered species found in Lao PDR and Cambodia. In Lao PDR, they live in the dry dipterocarp forest of Savannakhet. This species was discovered by WCS in 2002. In 2004 the Provincial governor of Savannakhet established of Ong Mang [Eld's Deer] Sanctuary with 93,000 ha.

In 2005 Ong Mang population was about 6-20 individuals. The population of this species is considered to be increasing and there are estimates that there are 80 -100 individuals currently. This potential increase is due to the declaration of the protected area and the cooperation between NGOs such as WWF with the Government of LAO PDR (DOF, PAFO, and DAFO). A key part of this success is the program to work with village conservation teams. From 2008 to 2010 there were 3 village conservation teams this has increased to 7 since 2010. The activities include Patrolling core zone, Boundary demarcation, raising public awareness, Construction of a water reservoir in the core zone, Land Use Planning, Monitoring Eld's deer population⁵.

Threat to biodiversity in the project area:

Outside of the Ong Mang (Eld's deer) Sanctuary there is significant pressure for land and access to forest and non-forest products, which are a significant threat to the local biodiversity. Rapid habitat conversion of the dry forest to make way for high-intensity agriculture is of concerned. In addition, incremental habitat conversion for subsistence farming and unsustainable land use is largely driven by poor planning. Often, communities

⁴http://www.la.undp.org/content/lao_pdr/en/home/projects/Sustainable-Forest-and-Land-Management-in-the-Dry-Dipterocarp-Forest-Ecosystems-of-Southern-Lao-PDR/

⁵ http://www.wwf.org.la/projects/elds_deer/

encroach upon the forest, burning vegetation to create livestock fodder. By doing this, the area in which Eld's deer is free to live and breed is reduced, ultimately meaning a drop in numbers.

The other major threat to the biodiversity of the region is from excessive logging over past decades. This logging as well as illegal hunting and unsustainable harvesting of non-timber forest products have put increasing pressure on the rich biodiversity of the forest and the Ong Mang population and other endangered species in those areas, such as the silvered leaf monkey and the Asian elephant.

Relationship of SAFE to the NBSAP implementation:

NT11 [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.

The SAFE project has a number of activities that are important in assisting the LAO PDR in implementing the LAO PDR NBSAP.



Conservation Management

- Established the Ong Mang Conservation and learning center (Eco-center) and Visitor Lodge in the dry dipterocarp forest. In this eco-center local villagers work with the provincial and district authorities to ensure that the forest ecosystem is treated with the care it deserves.
- Established forest conservation units of 15 villages with members 101 people (11 is females). Established 8 transacts walk for patrolling in four districts. The original 3 target villages carried out regular patrols in the core zone.
- Conducted biodiversity assessment in the project area: Total species 647 [plant (trees) 126, Bird 278, Mammal 67, Retile 47, Amphibian 38, Fish 91]
- Village forest management and planning 16 target villages of five districts.
- Awareness raising on related laws and regulations for target villages
- Planning and consultation for upgrading provincial Ong Mang Sanctuary to NPA is ongoing process. There are plans to expand the 93,000 ha Ong Mang Sanctuary to the 140,809 ha Ong Mang National Protected Area [area comprise with 55.39 % is dry dipterocarp forest, 11.11% is mix deciduous forest, 8.1% is shrub or fallow land.

Reforestation:

Established nursery and trees planting, Defined area for natural rehabilitation of five target districts 3,339 ha in 2017, and assess local tree species and planted 13 ha, and provided seedling for five target districts about 18,000 seedlings.

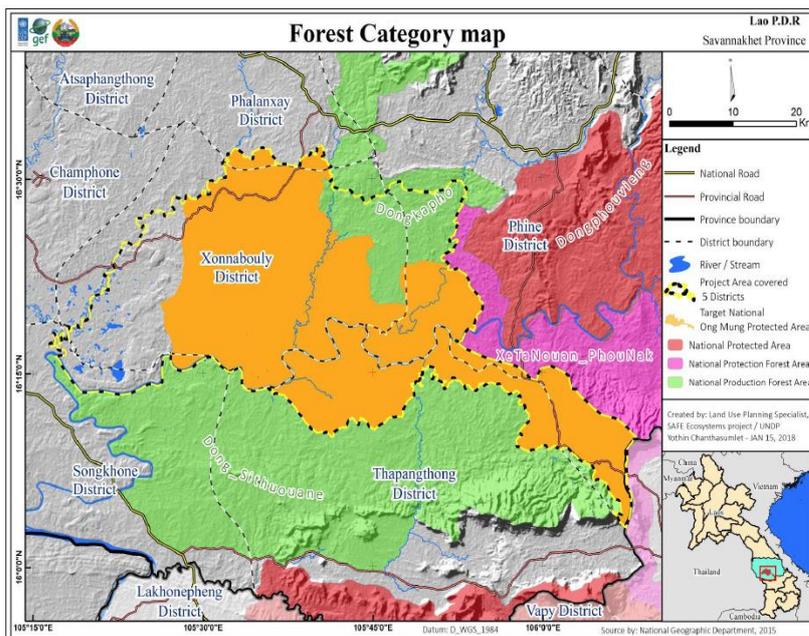
Ecotourism planning:

Conducted socio economic assessment, and potential ecotourism of villages 10 villages, Surveyed and assessment of 11 trekking routes.

Providing sustainable livelihood activities for 16 villages:

11 main activities have been developed aimed at supporting the target villages such as: village development fund, sustainable NTFPs management, livestock rising, integrated cropping and aquaculture, handicraft product making including weaving, water and sanitation, etc.

NT17 [2.1.2]: Mainstream the Integrated Spatial Planning (ISP) in the development of cities and rural areas for sustainable utilization:



The development of management programs for SAFE includes the use of a number of tools including Spatial Monitoring and Reporting Tool (SMART), to better provide monitoring and protection of biodiversity. SMART was used to empower conservation managers with timely and accurate information, guide their strategy in the most effective manner, ensure accountability and good governance and motivate the

staff and villagers for practical conservation efforts. Spatial information was developed and use for research, ecotourism maps, patrolling and wildlife monitoring with SMART.

The land use and management planning process developed for SAFE has greatly improved the capacity for Lao PDR to conduct Integrated Spatial Planning. For example, spatial information and data were analyzed for conservation planning purposes including the use and analysis of Landsat 8 data, for forest assessment.

Case Study 5: Measures and Actions within Lao PDR to Reduce Forest Loss and Degradation

The Importance of the Forests of Lao PDR:

In comparison to many of its SE Asian neighbours Lao PDR has a relatively high proportion of forest cover. This high forest cover and the diversity of habitats means that it also has correspondingly significant forest biodiversity and conservation values. Mixed deciduous forest is the most dominant forest type, the other types of forest include dry dipterocarp, dry evergreen, coniferous and mixed coniferous and broadleaved forest. The forests and other habitats of Lao PDR are part of the Indo Burma biodiversity hotspot⁶. The Indo- Burma hotspot is one of the most biologically important regions of the planet and the forests of Lao

⁶ <https://www.cepf.net/our-work/biodiversity-hotspots/indo-burma>

PDR are of global conservation significance. Forests are among the most species-rich ecosystems in the hotspot and the region has extraordinarily high plant species richness (Davis *et al.* 1995). This hotspot ranks in the top 10 of all hotspots for irreplaceability (a measure of how much of the biodiversity is found nowhere else) and the forests of the region provide habitat for a rich and largely endemic primate fauna with more than 20 species in Lao PDR of which, 14 are considered globally threatened. Within Lao PDR the forests of the Annamite Mountains of western Lao are an important Centre of endemism and one of the ecoregions selected by WWF as being part of the Global 200 ecoregions most crucial to the conservation of global biodiversity⁷.

The forests of Lao PDR are not just of conservation significance but are also critical to local livelihoods and economic activity within many rural populations. Some 80% of the population are heavily reliant on the forest for timber, food, fuel, fibre, shelter, medicines, condiments and spiritual protection⁸. Additionally, non-wood forest products, including edible insects, provide 60 per cent of the monetary income of rural villages⁹. The World Bank estimates that Forestry contributes 7-10% of Lao Gross Domestic Product (GDP) and 15-20% of non-agricultural GDP. Rural households depend on NTFPs for both domestic use and trade. The Lao PDR Biodiversity: Economic Assessment 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).

Threats to Forest cover and Forest biodiversity

The relatively higher forest cover is mainly due to a higher proportion of steep mountainous terrain, the country's relatively small population and a traditionally low rate of natural resource exploitation. However, since the middle of the 20th century the exploitation and clearing of Lao PDR forest has increased significantly. In the 1940s, forests were estimated to cover 70% (17 million ha) of the country's total land area of 23 million hectares. Recent analysis from the Lao PDR Forest Inventory and Planning Division (FIPD) estimated the 2005 forest was just over 61% and the 2015 forest cover was at around 58%. The rate of forest loss from 2005 to 2015 was at around 3.1% (approx. 735,000 ha), while during the same period, agricultural land expanded by approximately 2.1%.

Caution needs to be applied to historical comparisons of forest coverage and forest loss in Lao PDR, as reliable and consistent estimates of Forest cover is problematical as the figures depend on both the methodology applied and the definition of Forest. In particular, international analysis may use definitions of forest that are not entirely appropriate for a country such as Lao PDR. For example the Global Forest Resources Assessment by the United Nations Food and Agriculture Organization (FAO), applying the FAO forest definition of 10% tree canopy cover, shows a forest area in Lao PDR in 2015 of 18.8 million hectares and thus 81.3% of Lao PDR's total land area or over 5 million hectares higher than the figure arrived at using the 20% crown cover used for Lao FIPD forest type maps. At the same time the 2nd NBSAP using figures from MoNRE has the forest coverage in Lao PDR at 46.7 % in 2015, some 12% lower than FIPD figures.

⁷ Large-scale priority areas of uniform ecological features, chosen for the conservation of the most outstanding and representative of the world's habitats. <http://www.biodiversitya-z.org/content/global-200-ecoregions>

⁸ Ketphanh S., Foppes J., et al. 2012. Economic Valuation of Dry Dipterocarp Forest Ecosystem Services in Lao PDR: Preliminary lessons learned. Presentation to FIP scoping mission Vientiane, Department of Forestry

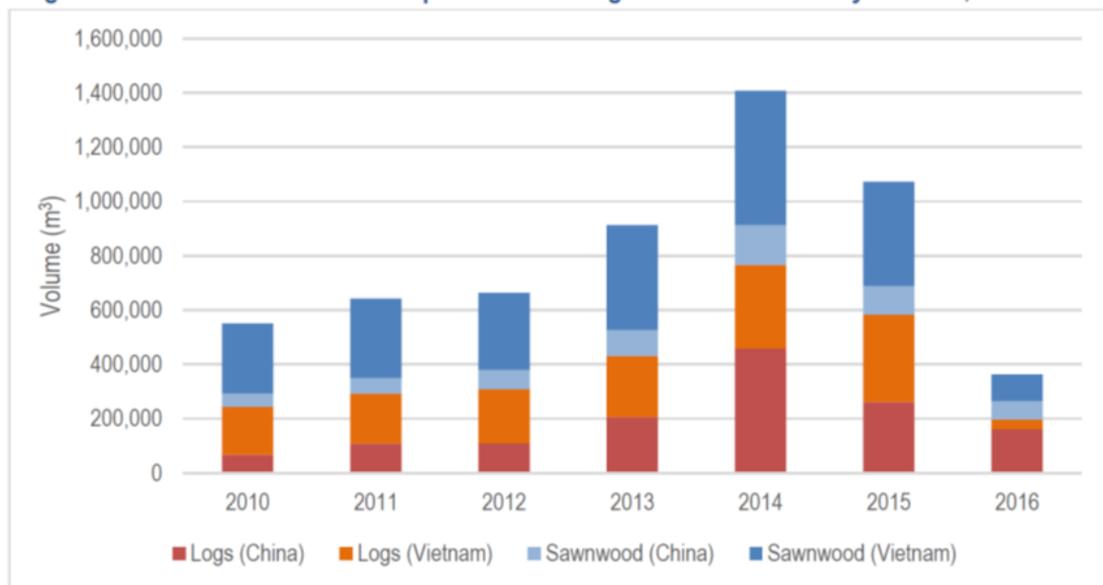
⁹ [http://www.fao.org/Lao PDR/fao-in-Lao PDR/Lao PDR-at-a-glance/en/](http://www.fao.org/Lao%20PDR/fao-in-Lao%20PDR/Lao%20PDR-at-a-glance/en/)

Nevertheless, there is little dispute that forest cover in Lao PDR has been declining for the later part of the 20th and most of the 21st century. Correspondingly, along with declines in forest cover forest quality has also deteriorated. According to DoF, FIPD sample data dense forest (having canopy closure of more than 70%) decreased from 3.2 Mha in 1992 to 840,000 ha in 2012. At the same time open forest increased from 16% to 24.5% of the total forest area over past decades, forest fragmentation has also increased with small forest compartments (less than 10 ha) rising from 0.9% to 6.7% of the total forest area between 1992 and 2005. Large forest compartments (larger than 1,000 ha) decreased in proportion from 88% to 54%. (Lestrelin et al, 2013).

The main drivers of deforestation are changes in land use with forests being converted to agriculture, hydropower, mining and plantations. The main drivers of degradation are legal and illegal logging, especially salvage logging and pioneering shifting cultivation. Underlying drivers are poverty, weak governance and corruption, poor law enforcement and limited capacities as well as unclear, often contradictory legislation and the international demand for timber, rubber, food, electricity and minerals.

In Lao PDR (Lao PDR) illegal logging activities are the main driver of forest degradation and one of the most pressing challenges when it comes to biodiversity protection (MoNRE, 2016). Recent evaluations indicate that the export of Lao wood products has been growing exponentially from the end of 2000s. From 2010 to 2014 the volume of timber exports to just two countries, China and Vietnam, accounted for 87% of exports which has more than doubled from <600,000 m³ to 1,400,00 m³ (see fig 1);

Figure 1: Vietnam and China's Imports of Lao Logs and Sawnwood by Volume, 2010-2016



Source: Vietnam Customs and China Customs statistics, compiled by Forest Trends.

Actions within Lao PDR to Address Forest loss and Degradation

In 2005, the government adopted its Forestry Strategy to 2020, which set a very ambitious target for increasing forest cover. The government of Lao PDR in the 1st NBSAP had committed to increase forest cover to 65% of the total land area by 2015 and the 2nd NBSAP has a target of 70% by 2020. Nine key programmes of action were proposed under this strategy: (1) land and forest use; (2) production forest; (3) non-timber forest products; (4) tree plantation development; (5) harvest/logging plans and royalties; (6) wood processing

industry; (7) biodiversity conservation;(8) protection forest and watershed management; and (9) village land and forest management.

Although as discussed earlier, the Forest Strategy was developed in 2005, forest loss and degradation continued. Figure 1 shows increasing exports of timber up to 2104 and was still high in 2015 but declined rapidly in 2016. From early 2016 the government of Lao PDR has increasingly implemented measures to combat illegal logging and timber exports and forest loss. In early 2016 after slow progress in terms of REDD+ the Lao PDR prepared a proposal to receive performance-based payments, which has been accepted into the FCPF Carbon Fund.

In May 2016 in response to the increasing extraction and export of wood products from Lao PDR forests, the Government of Lao PDR enacted a Prime Ministerial Order (PM15). This PMO, which, along with other commitments, was aimed at controlling the country's high deforestation rates and promote Lao PDR's own domestic wood product industry by banning the export of all logs and sawn wood. This followed a Notice issued in August 2015 (No. 1360) which also prohibited the export of raw logs. The PMO 15 does not allow the export of logs and sawn wood but only the export of r processed products with added value. Since issuing an export ban in the form of Prime Minister Order 15 in May 2016, the exports of timber to Vietnam and China have declined rapidly (To & Canby, 2017). Exports to Vietnam and China have dropped to 26 per cent of 2014 levels. Declines in exports to Vietnam were most prominent between 2015 and 2016, while declines to China were most prominent between 2014 and 2015

In 2017 the GoL initiated the Forest Law Enforcement, Governance and Trade (FLEGT) Voluntary Partnership Agreement (VPA) negotiations with the European Union (EU) including the multi-stakeholder process of defining and agreeing on Lao PDR's Timber Legality Definition (TLD) and development of a Timber Legality Assurance System (TLAS).

With the support of the Forest Carbon Partnership Facility (FCPF) financing, the GOL has prepared a draft National REDD+ Strategy (NRS), and in parallel, an ER-PD for the Carbon Fund, which includes Provincial REDD+ Action Plan (PRAP). The consultative process used to prepare PRAPs is important and informs the development of the national level framework for operationalizing and implementing REDD+ strategy options – which are the next step in the development of the national REDD+ framework. The development of the NRS has focused on setting the vision and identifying strategic intervention measures in parallel with the preparation of the ER-PD. The NRS specifies programs and strategic interventions over three phases, (2018-2020), (2021-2025), and (2026-2030) targeting five core interventions areas:

The NRS aims to address five key sets of drivers of deforestation and forest degradation, concerning: 1) agricultural expansion onto forest land; 2) unauthorized expansion of infrastructure and mining on forest land; 3) poorly-managed tree plantations; 4) unsustainable or illegal logging and NTFP harvesting; and 5) shifting cultivation and forest fires.

Case Study 6: The Globally Significant Agrobiodiversity of Lao PDR and the Agrobiodiversity Initiative (TABI)

The importance of Lao PDR Agrobiodiversity

Located within the Indo-Burma hotspot and containing a significant stretch of the Mekong River valley the country has an incredibly rich and significant biodiversity that provides a range of very important Ecosystem Services to the people of Lao. Of particular importance,

both locally and on a global scale, is that both the traditional farmlands and natural habitats of Lao contain a highly diverse agrobiodiversity. For example:

- Vegetable diversity is high. The National Agriculture and Forestry Research Institute have collected more than 2,100 accessions of local vegetables.
- Lao PDR is abundant in Non-timber forest products including plants, barks, vines, tubers and other forest products. These provide a source of food and income to local people. As forests diminish there are opportunities to domesticate these species.
- Aquatic diversity is incredibly high within the country. The Mekong and its tributaries host the largest in-land fisheries in the world.
- Livestock diversity is high with a number of indigenous breeds of chicken, buffalo and pigs.

This agrobiodiversity is not only locally important but is significant on a global scale. Lao PDR is a *centre of origin* for many agriculturally important plant species and varieties; in particular, Lao PDR is globally important repository of glutinous rice varieties. Since the early 1990s, more than 13,500 rice samples have been collected, of which 85% are glutinous types. These samples represent more than 3,000 rice varieties.

Threats to Agrobiodiversity

However, this rich natural capital is rapidly disappearing due to rapid industrial farming, rapid modernizations and a focus on forest conservation, which limits land use by rural people. National policies such as the 70% forest cover and stabilization of shifting cultivation exclude some traditional agricultural practices (especially shifting cultivation) and incentivize land-based investments in commercial crops through concessions, leases and contract-farming arrangements. All of this plays an important role in shifting toward mono-culture forests and agriculture which limit constrain the conservation and utilization of wild local crops.

The Agrobiodiversity Initiative (TABI)

In order to capitalize on this rich natural capital, The TABI was initiated by the MAF of the Government of the Lao PDR and the Swiss Agency for Development and Cooperation (SDC). The aim is to develop models and examples of ways to sustainably use agrobiodiversity in ways, which benefit local people while conserving local resources. TABI began in 2009 and now entering its third and final phase (April 2017 – September 2020). Over the course of the last 10 years, TABI has worked in more than 13 provinces throughout the country, benefitted more than 15,000 farmers and more than 315 communities (see map of coverage). In addition, it has carried out Forest and Agriculture Land Management Planning and Zoning to protect and sustainably manage more than 1,000,000 ha of land. Details of the TABI program and projects can be found on the TABI website <http://www.tabi.la/>

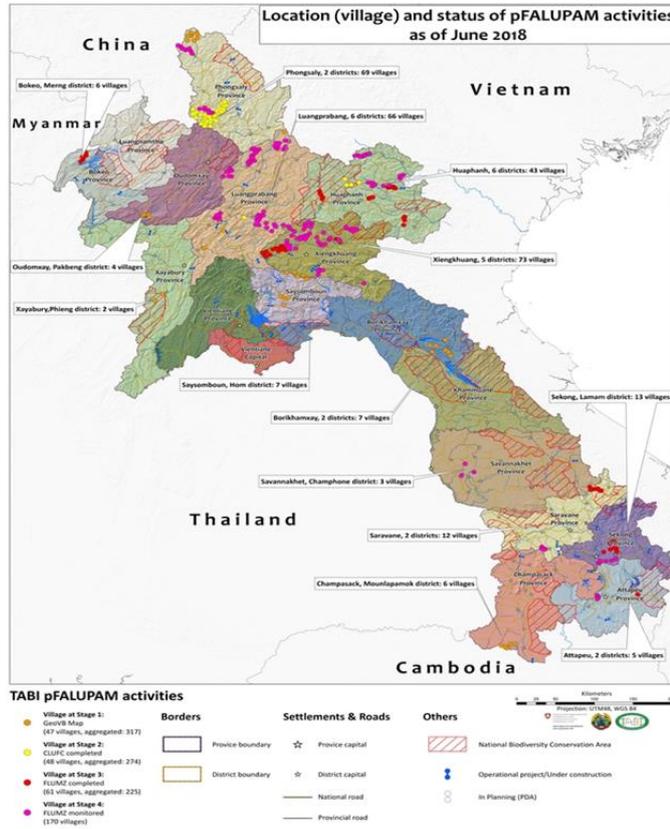


The Relationship of TABI to the National Biodiversity Strategy and action Plan

TABI is a critical component and good example of Lao PDR initiatives, which are actively contributing, to the implementation of the national targets set out in the National Biodiversity Strategic Action Plan

Some examples of this include:

- For national target 1.2.1 – TABI has developed more than 252 Fish Conservation Zones in Houaphan, Xiengkhouang, Luang Prabang and Phongsaly Provinces.
- Target 1.3.1. Agricultural support services: District staff in Houaphan, Xiengkhouang, Luang Prabang and Phongsaly Provinces have provided assistance to more than 40,000 Households focused on 24 agrobiodiversity types of activities.



- Target 1.3.2. The protection and sustainable use of biodiversity. TABI has carried out land use planning that enables the management of a multi-functional landscape. This has been done nationwide in 315 villages covering more than 1,000,000 ha. Specifically, it has great impact in three districts. In Phoukhout District, Xiengkhouang, TABI has carried out land use planning in 39 out of 44 villages in the whole district. Based on monitoring of the 14 selected villages (those with co-located shifting cultivation) there was an overall 30% decrease of upland agricultural land, and an 8% increase in forest area. In Phonsai District, Luang Prabang: TABI has carried out land use planning

18 out of 61 villages in the district. Based on monitoring data for 17 selected villages, there was in total a 28% decrease in upland agriculture, with a 28% increase in forest area. Remaining upland agricultural land averaged 26 ha per household. In Nambak District, Luang Prabang, TABI has carried out land use planning in 24 out of 84 villages in the district. Based on monitoring data for 24 selected villages, there was in total a 17% decrease in upland agriculture, with a 47% increase in forest area.

Remaining upland agricultural land averaged 25 ha per household.



- Target 5.1.2. Strengthened institutional mechanisms: TABI has contributed to the development of the National Biodiversity Strategic Action Plan, The National Agrobiodiversity Action Plan of MAF and 2

Provincial Biodiversity Strategic Action Plans in Luang Prabang and Xiengkhouang provinces.

The role of TABI in meeting the Aichi Targets of the Convention for Biological Diversity

TABI has contributed significantly to supporting Lao PDR commitment to meeting two of the Aichi Targets:

Target 7: By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity:

Through a unique process to integrated forest and agriculture land use planning, allocation and management; it has carried this out in 315 villages in 12 provinces covering more than 1 million ha of agriculture and forestland. TABI has collected detailed evidence of forest regeneration, reduction in shifting cultivation and strengthened local capacity to actively manage their land. The process is emerging as an effective mechanism for supporting better managed landscapes with multiple functions. It provides an opportunity for local people to demarcate, protect their resource claims and for increased clarity of various use zones.

Target 13: By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Over the last 10 years TABI has worked with hundreds of villages to identify economically important agrobiodiversity plant and animal species and find ways to sustainably manage these through their utilization. Some examples of this include:

Domestication: TABI has been supporting villagers in 5 Villages to domesticate and plant Nor Loy (*Arundinaria petelotii* Camus) in their fallow gardens near their homes. A total of 7 Villages and 143 households have worked with TABI and an additional 50 families have replicated this practice. This type of domestication has three benefits. First the domesticated bamboo shoots are planted near the village and have become a good source of food security to eat quickly rather than going to the forest which is farther away. The naturally growing Nor Loy is collected in a more sustainable way now and sold for income. The third benefit is that there is more awareness amongst villagers about the benefits of planting and protection in terms of soil stabilization and forest conservation.

Developing Khao Kai Noi Clean Seed System: TABI has been supporting an initiative to improve seed quality of Khao Khai Noi (KKN) rice-specialty indigenous rice. Initially TABI support a study to identify and characterize the different varieties of Khao Kai Noi. This led to develop clean seed production for Khao Kai Noi. This project works to improve standards and quality of KKN particularly for industrial production as well as conserve other varieties of KKN. In phase 3, the focus is on establishing province owned systems for continually producing clean seed. This entails setting up Foundation seed fields managed by provincial stations (R1), agreements with farmer groups to produce more clean grain production and discussion with millers and trades to purchase clean seed at a premium price. In this first year, TABI supported a number of stakeholder workshops to raise awareness about the importance of clean seed production.

Nor Loy (Bamboo shoots): TABI has been supporting villagers in Kor Hin Village to domesticate and plant Norloy in their fallow gardens near their homes. A total of 7 Villages and 143 households have worked with TABI and an additional 50 families have replicated this practice. This type of domestication has three benefits. First the domesticated bamboo shoots are planted near the village and have become a good source of food security to eat

quickly rather than going to the forest, which is farther away. The naturally growing Nor Loy is collected in a more sustainable way now and sold for income. The third benefit is that there is more awareness amongst villagers about the benefits of planting and protection in terms of soil stabilization and forest conservation. A partnership with GRET is also in the works to improve the marketing of Nor Loy shoots.

Oranges: Native oranges grown in the uplands are increasingly popular. One of the famous native species is ‘the Nambak orange’ found in Nambak, Luang Prabang. It was found that while the market is strong, farmers carried out very little pruning or management of the orange orchards is limiting production and quality. Since 2015, TABI has worked with farmers to improve management of oranges. The project initially selected 30 interested families out of 1,290 in total from 8 villages. On the job training and farmer-to-farmer learning was used to improve knowledge on cutting techniques, production compost, treatment, seedling production and maintenance. Mindsets and change attitudes have changed significantly. From 2015 baseline, orange production increased by around 15-25% and incomes from 27-39%.

SECTION 2: INFORMATION ON TARGETS BEING PURSUED AT THE NATIONAL LEVEL

2.1 Overview of the National Strategies, Targets and Actions

The Lao PDR 2nd NBSAP 2016-2025 includes 29 overarching national targets spread across the 5 National Strategies discussed in the previous section. Under those 29 targets are 69 national Actions. Of those 69 actions, the majority, 38 actions, are intended to contribute to the NBSAP National Strategy 1 (Protecting the ecosystem), 8 actions contribute to National Strategy 2 (Valuing biodiversity), 9 actions contribute to strategy 3 (Strengthening the knowledge base), 6 actions contributed to National Strategy 4 (Enhancing Communication and Public Awareness), and 8 actions contribute to National Strategy 5 (implementing plans projects and programs).

In terms of the National Targets, the delivery of the Target is related to the implementation of specific National Actions. Most (23) have multiple National Actions within the NBSAP, with only 6 having a single action for implementation of the target. The highest number of actions is 6, for National Target 23 (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.* Another 5 National Targets have 4 relevant National Actions, with 4 National Targets with 3 National Actions and 13 National Targets have 3 National Actions. Table 2.1 below provides a list of all the 29 National Targets and how they equate to the National Targets numbering system within the NBSAP.

Table 2.1: List of Targets from NBSAP including numbering used for 6NR

| Target No for 6nr | Target No. NBSAP | * National target |
|-------------------|------------------|---|
| 1 | 1.1.1 | Achieve National Goal of 70% forest cover of the total national area by 2020 |
| 2 | 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 |
| 3 | 1.2.1 | At least 250 Fish Conservation and breeding sites (that include local /indigenous species) are established and are recognized /supported by stakeholders living in the watersheds where these sites belong. |
| 4 | 1.2.2 | National wetlands strategy in place while management plans with substantive funding are implemented in at least 12 important wetlands sites |
| 5 | 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 |
| 6 | 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 |
| 7 | 1.3.2 | The protection and sustainable use of biodiversity rich agricultural landscapes demonstrated in at least 1 site per province. |
| 8 | 1.3.3 | Agriculture and forestry sector have reduced the use of hazardous agro-chemicals. |
| 9 | 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. |
| 10 | 1.4.2 | The waste generation in the municipal areas across the country are reduced |
| 11 | 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. |
| 12 | 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 |
| 13 | 1.5.3 | The extinction of at least 5 priority species (to be determined from the Lao Red |

| | | |
|----|-------|--|
| | | lists) is effectively prevented through better law enforcement and in situ and ex situ conservation. |
| 14 | 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 |
| 15 | 1.5.5 | Improved regulations are enforced and capacities improved to protect plants (including rice) and animals in priority areas from alien species invasion. |
| 16 | 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 |
| 17 | 2.1.2 | Mainstream the Integrated Spatial Planning (ISP) in the development of cities and rural areas for sustainable utilization |
| 18 | 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 environmentally sound manner |
| 19 | 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) |
| 20 | 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 |
| 21 | 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 |
| 22 | 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 conventions |
| 23 | 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. |
| 24 | 4.1.1 | Key civil service personnel from key agencies demonstrate improved knowledge and skills in biodiversity planning and implementation |
| 25 | 4.1.2 | Increased public awareness on the value of biodiversity among targeted stakeholder groups including those in 24 NPAs. |
| 26 | 4.1.3 | The value of biodiversity and its sustainable use is incorporated in formal and informal education programs |
| 27 | 5.1.1 | Sustainable financial mechanism for timely obtaining and transparent utilization is developed and implemented. |
| 28 | 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. |
| 29 | 5.1.3 | Integrated strategy for tapping multiple funding sources (internal, external & innovative) in place so that funding windows for BD (Agro-BD) increase by at least 50% by 2020. |

2.2 A review of action for each of the National Targets and Actions

National Target 1: Achieve National Goal of 70% forest cover of the total national area by 2020

There are Four National Actions that are part of National Target 1 (NT1). The Relevant National Actions are [1.1.1 (a); 1.1.1 (b) 1.1.1 (c) 1.1.1 (d)].

This is an ambitious target, focused within the forestry sector, which aims to increase the forest cover of Lao PDR from the current 58% (in 2015) to 70% of the total land area (17 million ha) in a relatively short timeframe of 2020.

In the middle of the 20th Century forest cover was estimated at approximately 71.8 %¹⁰. From that time onwards the country has suffered from significant deforestation. The 70% target was adopted originally in 2005, as part of its Forestry Strategy to 2020. However, between 2005 and 2015 the forest cover continued to decline from just over 13.85 million ha (<60%) to 13.23 (58%) million ha by 2015.

Nevertheless, recently there has been significant action towards this target on several fronts: MAF has developed the National Forest Information System. This includes the systematic assessment of quantitative data on three categories forest cover change and carbon stock change every five years (2000, 2005, 2010, 2015) the forest cover change program is based on the national forest inventory system and the methodology of the Forest Carbon Partnership Facility (FCPF). The National Forest Inventory program has been conducted every 10 years. MAF has also started planning for the 3rd national forest inventory, which is expected to start in late 2019. The national forest classification system will be updated and applied during forest inventory. The forest definition for the national inventory is apply “*Forest is a precious resource of the nation and its specific ecology, which consists of biodiversity, water sources and land with various tree species growing naturally or planted in an area more than zero point five (0.5) Hectares with crown cover more than 20 percent (20%)*”¹¹.

The MAF annual report 2015-2016 estimates that there has been around 21,000 ha forest plantation establishment within the national forest estate. In addition natural forest regeneration and rehabilitation is estimated to be around 108,200 ha (MAF, 2017). This has been achieved via both the ADB led Biodiversity Corridor project (see case BCC case study) and private enterprise supporting the central, provincial, district and local community in tree planting. Tree planting is organized every year during rainy seasons. In 2019, DOF projects that more than 22 million seedlings will be produced. In addition, support for plantation/ farm woodlots registering and certification is planned for 200 plots, around 100,000 ha (DOF, 2018). Caution needs to be applied to the translation of the success of seedling propagation and successful forest restoration. Although, tree planting has been promoted widely, there are reports of numerous plots of trees with poor growth due to soil condition, poor silvicultural practices and excessive weed occupied. At this stage no systematic quantifiable figures exist to evaluate the success of the tree planting programs.

The issuing and implementation of *Prime Minister Order 15 (PMO15) on Strengthening Strictness of Timber Harvest Management and Inspection, Timber Transport and Business* (PMO, 2016). This suspends exports of logs, planks, prohibits imports of illegal timber and timber products, and prohibits project developers or infrastructure construction contractors to carry out timber harvesting them (See forest protection case study). Since 2006, wood processing industries have transferred from MAF to Ministry of Industry and Commerce and based on the review of PMO 15 Implementation¹². The GoL has made significant progress on a substantial reduction of illegal logging and business. PMO 15 enforcement up to May 2018 indicated that more than 74,000 cubic meters and 290 tons of timber has been seized including rose wood species such as *Dalbergia cochinchinensis*, *Pterocarpus/ Dalbergia* sp. Some 55,000 cubic meters and 136 tons of timber have been sold through the auction process, and around 108,000 cubic meters of finished wood product was exported. Likewise, more than 1,000 low quality wood industry processing factories were ordered to close (MOIC,

¹⁰ There are some difficulties in accurately assessing this target as traditionally there have been problems in obtaining definitive information on Forest cover (see case study).

¹¹ Revised article 2 draft Forestry Law 11 June 2019.

¹² (MOIC, 2018a), *Wood Industry Processing Formulation, Confiscated timber auctioning from 13 May 2016 ~ 14 May 2018*.

2018b). Since the implementation of PMO 15 the harvesting and logging of prohibited species has also decreased sharply.

In September 2018 a new project for rose wood conservation was commenced, "Conserving Rosewood genetic diversity for resilient livelihoods in the Mekong". This new project is expected to run from 2018-2021. At this stage the project activities have been identified, the action plan developed, and networking established. There are other programs underway under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) initiative supporting regulation and enforcement for Prohibited timber species.

National Target 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

There are 3 National Actions [1.1.2 (c), 1.1.2 (d), 1.1.2 (b), 1.1.2 (a)]

There are several national programs that influence commercial forest harvesting and processing in Lao PDR. One of the most significant is the joint Lao PDR and Japan International Cooperation Agency (JICA) Lao PDR Sustainable Forest Management and REDD+ Support Project established in 2015 (currently JICA support in forestry sector is merged as a project as F-REDD¹³) (MAF, MONRE, Kokusai Kogyo Co., 2015). The objective of the project was to strengthen the capacity for sustainable forest management through incorporation of REDD+ into the sector strategy and improvement of forest resource information. One of the key programs under this project was to Support the forestry sector at the central via providing support for formulation and implementation of forestry policies, as well as promotion of sector coordination at the central level to produce the National Forest Strategy to 2020 (FS2020). DOF undertook a review of the forest strategy to the year 2020. The review report was presented and discussed between concerned stakeholders across Lao PDR. Also, forest performance indicators 2014 were developed (FSCAP, 2014). However, since that time there has been no progress on updating forestry strategy. DOF has advised that they plan to update the Forest strategy to the year 2030 in 2019.

In terms of production forest management, Forest Management plans for all 51 national production forest areas and all 112 compartments have been developed by DOF with support from the Sustainable Forestry for Rural Development (SUFORD) Scaling Up Project (MAF, 2017). For community forest management and certification, forest auditing process for two communities in Bolikhamxay and an additional area in Savannakhet province were conducted by the Province Rain Forest Alliance and DOF in 2018. However, as the government of LAO PDR has placed a hold since 2013 on all harvesting from Production Forest Areas (PFAs) the auditing process must change the scope. In addition, DOF has improved PFAs management plan including conducted high conservation values (HCV) survey. The HCV survey was conducted in eight PFAs in the central and southern provinces. In addition, Forest Stewardship Council (FSC) forest certificate and auditing progress are continuing to certify more 4 PFAs in Khammuane and Savannakhet province.

FSC certification for two communities in Bolikhan District, Bolikhamxay Province for Rattan cane (rough form) was re-issued in December 2018 and valid until March 2022 for a total forest area of 10,949 ha¹⁴. However, an impediment is that existing forestry law does not allow the local community to harvest and sell timber products and enter the enterprise process. There is however processes in place that are attempting to rectify this. The FLEGT

¹³ https://www.jica.go.jp/project/english/Lao_PDR/018/index.html

¹⁴ <https://info.fsc.org/details.php?id=a024000005s1MAAU&type=certificate&return=certificate.php>

VPA¹⁵, is with support of the EU supporting DOFI and several Community Service Organizations to conduct a study on several topics related to the rights of local community in selling the timber products, including village use forestry.

National Target 3: At least 250 Fish Conservation and breeding sites (that include local /indigenous species) are established and are recognized/ supported by stakeholders living in the watersheds where these sites belong, Two National Actions [1.2.1 (a), 1.2.1 (b)]

The Department of Livestock and Fisheries reports that a total 885 of fish conservation zones have been established (DoLF, 2018). This includes 252 fish conservation zones developed by the local community in Houaphan, Xiengkhouang, Luang Prabang and Phongsaly provinces with support provided by TABI project¹⁶. Nevertheless, the stakeholder consultation process undertaken as part of the 6NR process indicated that there may be issues with the effectiveness of the management and monitoring of performance of these fish conservation zones. The concerns raised include:

- Information of endangered and endemic/native species and its habitat, including populations' distribution is limited.
- There is poor delineation between conservation & production zones in some places.
- The good fish breeding system and breeding techniques for supporting endemic and endangered species is limited.
- There is a high threat of destroying of fish habitat and ecosystem, especially from pesticide/ herbicide, land and forest degradation, change of water quality, change of the landscape, and overfishing. Therefore, there is need to improve the system for establishing fish conservation zone/ management & monitoring.

To help improve the effectiveness of these National actions there is a need to develop an endangered endemic/native species database system and including it in the ecological system classifications. There is also a need for support to local communities for improving fish breeding facilities, equipment's, monitoring tools, guidelines, field site inventory. The capacity building for testing & breeding technic for the key endemic/native and endangered species, as well as provide the training program for the local staffs (including private farms) in several topics on endemic monitoring and its ecosystem assessment, fish diseases prevention, fish breeding, and conducting several research topics on endemic and endangered species.

National Target 4 [1.2.2]: National wetlands strategy in place while management plans with substantive funding are implemented in at least 12 important wetlands sites, Three National Actions [1.2.2 (a); 1.2.2 (b); 1.2.2 (c)]

At a national level MoNRE has the overall responsibility for management of wetlands through two departments: Department of Water Resources (DWR) has responsibility for all wetlands except for the Ramsar sites; and Department of Environmental Quality Promotion (DEQP) has responsibility for the wetlands under Ramsar. However, Agricultural uses of wetlands are still under MAF and Lao National Mekong Secretariat is responsible for transboundary wetland issues under Mekong River Commission (MRC) projects. In general, for most wetlands in Lao there is very little effective coordination for nationwide wetland

¹⁵ <https://flegtLao PDR.com>

¹⁶ <http://www.tabi.la/activity/aquatic-systems/>

management and protection at the policy level. At present, there is no National Wetlands Strategy and no national policy carries specific actions for wetland conservation.

A recent report produced jointly by FAO, MoNRE and GEF¹⁷ recommended the establishment of a National Wetlands Management Committee and TWG under MONRE's leadership. This committee should provide overall leadership and guidance on the wise use of all wetlands in the country, develop inter-ministerial consensus on their importance and on the main policy directions required and should develop its own Strategic Plan of Action.

In terms of action on wetlands in Lao PDR several guidelines, posters, and booklets for fishery law enforcement and implementation have been developed. After the government order the PMO No5 on the management and inspection of prohibited wild fauna and flora was declared the National Wildlife and Aquatic Crime Response Action Plan of Lao PDR has been issued. But detail guidelines specific for aquatic resources are still in an ongoing phase of development.

In addition, several cooperative activities are under implementation aimed at preserving the Mekong biodiversity. These include

- The Lao-Thai Fisheries Project, where the project is cooperation between MAF and WWF-Lao PDR and neighboring partners¹⁸.
- MAF is also cooperating with Southeast Asian Fisheries Development Center (SEAFDEC)¹⁹, Network of Aquaculture Centers in Asia-Pacific (NACA) on fishery program.
- Likewise, Lao PDR participates in The MRC on transboundary dialogue.

Nevertheless, within Lao PDR two RAMSAR sites have been established in Savannakhet and Chapasack province. Within these two Ramsar sites, FAO are leading the GEF funded Climate Adaptation in Wetland Areas of Lao PDR (CAWA) project²⁰. This project is also actively supported by the Lao PDR government agencies MONRE and MAF as well as NGOs IUCN and WWF. The main project components include:

- i) Improvement of knowledge and understanding of Climate Change (CC) impacts and risks,
- ii) Implementation of appropriate CC adaptation and risk reduction measures, and
- iii) Integration of tested and cost-effective CC adaptation and disaster management measures into critical planning processes at local and national levels.

A key objective of CAWA is aimed at supporting the development of management plans for these wetlands that integrate science with the traditional knowledge of the local communities. To date, Institutional settings and arrangement for the adaptation measure/ implementation have been developed, but action towards the plan and strategy on wetland inventory, assessment and management has been limited. In particular, information on the impacts of natural resource use and management in the surrounding areas on the wetlands and especially RAMSAR sites is limited.

Therefore, the establishment of a wetland management committee at each level would be a potential improvement for wetland planning & management. There is also a need to develop

¹⁷ *Institutional Mechanisms for Wetlands Governance in the Lao PDR in the Context of the Ramsar Convention*
<http://www.fao.org/3/I8803EN/i8803en.pdf>

¹⁸ http://www.wwf.org/la/projects/lao_thai_fisheries/

¹⁹ <http://www.seafdec.org/fisheries-country-profile-lao-pdr/>

²⁰ <http://www.fao.org/in-action/cawa>

and standardize the techniques for inventory, assessment, management and monitoring model for each region in the north, central and southern regions.

National Target 5 [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 [1.2.3 (a), (1.2.3 (b); 1.2.3 (c)]

It was not possible to provide an assessment for 3 of the National Actions as information was not available for evaluation during this 6NR process. In particular, it does not appear that any action has been taken for Mainstreaming Integrated Water Resource Management (IWRM) Plans into ISPs and a lack of funding and coordination has severely limited progress on Development and implementation of IWRM Plans for many of the 10 priority river basins.

However, the MONRE draft annual report 2016-2017 and the sub-project report for the EPF funding, indicate that at present over 80% of the priority river basins are actively implementing the Water Resources Management Plan from 2016 to 2020 (MONRE, 2017; 2018). A summary of the actions either completed or underway include:

- The IWRMP for the priority river basins [Xe Bang Fai, Xe Bang Hieng, Nam Ou] have been developed and some activities have been implemented.
- The IWRM Plan of Nam Thuen-Namkading Basin has been developed and implementation is underway within two provinces Bolikhamxay²¹ and Khammuane²².
- Water resources protection and management of Nam Xam basin in Huaphanh province (phase 3)²³, Nam Had Basin in Bokeo Province²⁴, Nam Se Ta Muak Basin²⁵ in Savannakhet Province is ongoing
- A risk assessment for water quality of Nam Sedon and Nam Ngum has been undertaken and reviewed (MONRE, 2018).
- A total of 180 hydrology stations for water quality checking and monitoring have been established. There are 169 hydrology stations managed by MONRE and 11 stations are managed by MRC.
- 18 meteorology stations for precipitation measuring were upgraded and 8 hydrology stations for water level measuring have been renovated.

There are several ongoing water resource management projects which are being implemented at both the provincial and national level such as (1) Hinboun Catchment Management Plans Establishment and Analysis; (2) Namxam Basin Protected and Management Project-Phase 3; (2) Nam-Thuen-Nam Kading Basin Management; (3) Staff Capacity Building on river Basin and Land Management (national level, implementing by DWR; (4) Nam Had Basin Management; and (5) SVK Nam Se Ta Muak Basin Management²⁶.

Another WRM plan is also supporting the protection of upper catchment forest cover activities have included inventory, establishment of the village committee and providing support for compliance and enforcement patrolling. The project has also established and

²¹ <https://laoepf.org.la/wp-content/uploads/formidable/18/WRM-021-BKX-Annual-2017-Report.pdf>

²² <https://laoepf.org.la/wp-content/uploads/formidable/18/WRM-006-KM-Annual-2017-Report.pdf>

²³ <https://laoepf.org.la/wp-content/uploads/formidable/18/WRM-019-HP-Annual-2017-Report.pdf>

²⁴ <https://laoepf.org.la/wp-content/uploads/formidable/18/WRM-024-BKO-Nam-Had-Basin-Management-Project-proposal.pdf>

²⁵ <https://laoepf.org.la/wp-content/uploads/formidable/18/WRM-025-SVK-Nam-Se-Ta-Muak-Basin-Management-Project-proposal.pdf>

²⁶ <https://laoepf.org.la/projects/epf-funded-projects/>

expanded water quality checking stations, and provided capacity building for staffs at the provincial, district level on various issues related to land use management.

National Target 6 [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 [1.3.1 (b); 1.3.1 (a); 1.3.1 (c)]

Within Lao PDR there are several programs and significant activity directed towards supporting local communities to implement sustainable agriculture. These include TABI The Agro-Biodiversity Initiative (see the TABI case study), The Northern Upland Development Project (NUDP), and another project related to food security and nutrition supported by IFAD²⁷ and EU²⁸.

Based on MAF report, in 2017, approximately 4.5 million hectares of arable land was used for rice cultivation. To assist in the long term implementation of sustainable rice production MAF has completed the assessment of rice field and quality of 175,000 hectares of rice field land in two target provinces, and 32,000 hectares of rice fields of 11,500 households have been registered and planned to apply machineries and modernize technique for increasing the productions (MAF, 2018).

MAF has also undertaken several activities relevant to this action:

- The National land quality assessment for crops including rice has also been conducted for 7 big plateaus and 2 medium plateaus,
- MAF has completed mobilizing of funding for the construction of 32 organic fertilizer factories in the target rice production provinces.
- 300 soil doctor volunteers have been trained in the rice production focused zone since 2014
- MAF has strictly inspected the use of chemicals and pesticide especially in the banana plantations.
- Expanded the green agriculture area into 50,000 hectares that can produce crops and export to other countries.

There have been a number of policies developed to support farmers move towards more sustainable production, especially tax, loan, reduction of electricity, transportation and logistics, policies on setting up producer group, cooperatives. The sustainable clean and green agricultural directives are set. One policy which encourages farmers to join together as agricultural cooperatives has allowed them to have more power in agricultural commodity production as well as facilitated the use of some mechanization reducing costs, increasing efficiency and reducing the loss from harvesting. Farmers have applied these new production techniques which have resulted in increased volume of crop production for maize, cassavas, coffees, rubber, fruit, bananas, palms, Inca peanuts, passion fruits, watermelons, and other crops.

In case of the TABI project in agricultural support services: District staff in Houaphan, Xiengkhouang, Luang Prabang and Phongsaly Provinces has been trained and provided assistance to more than 40,000 Households focused on 24 agrobiodiversity types of activities.

²⁷ https://www.ifad.org/en/web/operations/country/id/Lao_PDR#anchor-1

²⁸ https://eeas.europa.eu/delegations/lao-pdr/area/projects_en?page=1

TABI has also supported a study to identify and characterize the different varieties of Khao Kai Noi (KKN) rice-specialty indigenous rice. This has led to the development of clean seed production for Khao Kai Noi. Additionally, TABI has also provided support for sustainable bamboo shoot and orange cultivation.

Finally, several projects aimed at land use planning suitable for agriculture has been developed and implemented for several many villages countrywide. These have been supported by a number of organizations including [TABI, BCC, NUDP, LMDP, SUFORD SU, etc.).

National Target 7 [1.3.2]: The protection and sustainable use of biodiversity rich agricultural landscapes demonstrated in at least 1 site per province

There are a number of programs actively supporting local communities with biodiversity sensitive Land use planning. These include:

- TABI,
- Northern Uplands Development Programme (NUDP),
- Biodiversity Conservation Corridors Project (BCCP),
- Sustainable Forestry for Rural Development Project Scaling Up (SUFORD SU),
- Land Management & Decentralized Planning (LMDP),
- Enhanced Land Tenure Security (ELTeS),

TABI has carried out land use planning that enables the management of a multi-functional landscape. This has been done nation-wide in 315 villages covering more than 1,000,000 Ha, BCC support for land use planning for in 84 villages. More than 1,000 villages in and around PFAs also get support from SUFORD SU. However, there are still significant limitations to the capacity of TABI and others to provide support to all villages and districts across the country. Therefore, as there is no consistent government program access to land use planning support or information on the sustainable use of biodiversity in their locality is limited for most villages across the country.

National Target 8 [1.3.3]: Agriculture and forestry sector has reduced the use of hazardous agro-chemicals [1.3.3 (a); 1.3.3 (b)]

General Assessment: most of the activities relating to the National Actions in this Target have been partially effectively

In 2010s, GoL set a policy for green and clean to promote agricultural productivity including organic farming. At the policy level MAF has developed an appropriate policy and management system aimed at reducing and controlling pesticide use and importation in Lao PDR. This Pesticide Management Decree was endorsed by the Government of Lao PDR in 2017. Through the implementation of this policy, MAF has strictly inspected the use of chemicals and pesticides, especially in banana plantations. The management system for ensuring the safe and sustainable use of chemical and pesticides has been designed so that it is consistent with Association of South East Asian Nations (ASEAN) and international standards as well as providing a focus on control measures towards prohibited pesticides and pesticides. Through these measures it is estimated that the use of chemical fertilizers, pesticides and herbicides will be reduced. However, no specific data on how much reduction will occur has been provided.

The GoL has ratified the Cartagena Protocol on Bio-safety and the Rotterdam Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in

International Trade, Basel Convention and Stockholm Convention (BRS). Department of Pollutions Control of MONRE is the focal point for BRS.

There are also a large number of sub-projects are being implemented by several local provincial organizations in northern provinces of Bokeo, Phongsaly, Luangnamtha, Oudomxay, Xayaboury and central part is Savannakhet province²⁹, ³⁰. These projects are targeted at providing support for capacity building of district agricultural staff on the:

- Impacts of chemical use on the environment and production including grass herbicides,
- Safe pesticide and herbicide use.
- Training in conducting sample and data collection and analysis;
- Developing mitigation options with the local villagers for reducing the impacts of chemical impacts on health, terrestrial ecosystem and water resources;
- Awareness raising on the dangerous of chemical use also conducted;
- Carried out social and environmental assessment to assess the perspective of the local villagers on the problem of chemical, pesticide, and herbicide use.
- Furthermore, projects also support through Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) capacity building for the PONRE & DONRE including learning techniques for Environmental Social Management and Monitoring Plan (ESMMP) monitoring and database development.

National Target 9 [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. [1.4.1 (a); 1.4.1 (b)]

There are two National Actions under this Target. One focusses on integrating biodiversity and ecosystems into urban planning, and the Second on reduction of pollution form urban areas. At this point there appears to be little activity towards is impending the first Action.

In terms of the second Action the Department of Pollution control together with the PONRE has supported the DONRE in several activities such as

- (1) Conducted consultation meeting on Pollution and Waste Management of 148 districts;
- (2) Polluted & sources of pollution data was collected;
- (3) Finished training program on pollution control and environmental standards, and pollution sources inventory and database development, management of three provinces;
- 4) Capacity building for central & local authorities on pollution control and sustainable use of consumption; and
- (5) Awareness raising campaign on solid waste reducing for the local community, and
- 6) Study tour and knowledge exchange with partners institutes in Vietnam, and Thailand.

At the national level MONRE has purchased and used equipment for measuring emission level, noise and water quality³¹.

NT10 [1.4.2]: The waste generation in the municipal areas across the country are reduced [1.4.2 (b); 1.4.2 (a)]

²⁹ <https://laoepf.org.la/projects/epf-funded-projects/>

³⁰ <https://laoepf.org.la/projects/lens2-projects/>

³¹ https://laoepf.org.la/wp-content/uploads/formidable/47/LENS2_PCD-MONRE-Midterm-Report-Jan-to-Jun-2018.pdf

Many provinces have identified the target group for solid waste management and monitoring (e.g. industry, industrial estate, steel rolling mills, cement plants, brick factory, mining project of 8 target provinces: Xiangkhuang, Xaysomboun, Huaphan, Phongsary, Xayyaboury, Xekhong, Saravan, and Attapue provinces. Implementation includes Staff capacity building in related topics and more than 300 people, including staffs of SMEs have been trained. In addition, awareness raising activities for local villagers and schools have been organized in several locations. Another, a center for environment and development at the National University of Lao PDR (NUoL) also provides the capacity building and information sharing to the students and the public.

National Target 11 [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. [1.5.1 (c); 1.5.1 (a); 1.5.1 (b)]

General Assessment: For most of these Actions, implementation has only been partially effective.

Overall the capacity and resources available to Protected Area staff are very limited however a number of recent projects and programs are in places that partially address this shortfall in relation to this Target. These include:

- Capacity building programs for Protected Areas (PAs) and Protection Forests (PFs) Management in Bolikhamxay (BLX), Hua Phan (HP), Luang Prabang (LPB), Xiengkhouang (XK), Khammouane (KM) provinces (<https://laoepf.org.la/projects/lens2-projects/>). The activities were implemented by the Provincial Forest Resource Management Office (PFRM) which is now the Provincial Agriculture and Forestry Office (PAFO).
 - More than 200 staff have been trained in various topics and significant support and training provided to the district levels in NPA planning, management and monitoring.
 - Through LENS2 and EPF there have been projects involving training for compliance and awareness raising on law and regulation for forest protection and forest inventory, protected area boundary demarcation, sight board setting, forest land and forest allocation, land use land use planning and mapping for the local community/ villages land use maps, establishing conservation network and committees.
 - The projects have also developed a wildlife regulation patrolling plan together with local community in the project area,

Regarding the Dry Dipterocarp forest, around 140 thousand hectares of forestland is planned for incorporation into the Ong-Mang National Protected Area (SAFE Project, 2018a; 2018b). For this area, Land use planning, forest cover assessment and mapping was conducted. This has resulted in the establishment of the core zone for Ong-Mang sanctuary. As well as several livelihoods incentive activities are planned and provided to the local community whom are living in the target districts. Capacity building of various topics is conducted at the provincial and district levels these include Ecotourism planning and community patrolling activities³².

³² http://www.la.undp.org/content/lao_pdr/en/home/projects/Sustainable-Forest-and-Land-Management-in-the-Dry-Dipterocarp-Forest-Ecosystems-of-Southern-Lao-PDR/

Furthermore, institutional capacity building for PA and PF management and wildlife conservation project where draft NPA status report prepared, Master plan of NPAs ongoing developed, in total 11 NPAs guidelines have been prepared and discussed among project team members such as Collaborative management in NPAs, Zoning for conservation and Development in NPAs, Biodiversity monitoring in NPAs, etc. There are 3 NPAs fact sheet produced [Xe Pian, Na Kai Nam Theun, Hin Nam Nor] and basic information of the NPAs from Savanakheth to Southern province have been collected [Dong Hua Sao, Xe Sap, Dong Ampham]. Also, several activities are undergoing the planning stage such as, the database for tracking investment in NPAs, Tiger survey and planning, promotes NPF management.

In 2018, the GoL has endorsed the upgrading of two NPAs to National Park: Na Kai-Nam Theun, and Nam Et-Phou Leuy.

So far 219 (61 females) government staffs, and 1,076 (432 females) villagers have been trained in various topics such as PA management & planning, safeguards, Outreach, Law enforcement³³.

National Target 12 [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, National Target 11 [1.5.1] National Target 12 [1.5.2]:

Through the ADB supported **Biodiversity Conservation Corridors Project** there has been considerable progress made in three regions in relation to this National Target (see the BCC case study for more detail).

The first phase of the Lao PDR BCI was coordinated by the Water Resources and Environment Agency (WREA) and included establishment of corridors across 11 villages connecting the Xepian and Dong Hua Sao National Protected Areas (NPA) in Champasack province in southern Lao PDR³⁴.

The second phase of the BCCP aims to maintain and consolidate forest ecosystem connectivity between Xe Xap NPA in Xekong province with Dong Ampham NPA in Attapeu province and in Xepian and Dong Hua Sao NPA in Champasak province. This phase of the project incorporates 84 villages in 5 districts located across the three provinces. Currently, the project is administered by the DOF.

Under phase 2 Management plans and substantive funding are in place to enforce BD protection in at least 10 NPAs (from an existing base of 2), 5 PPAs, 3 protection forests and 2 corridors. A total of 84 Village development plans have been developed and are in advanced stages of implementation. This process included Land use planning outlining both conservation and protection forest for each of the villages. The community forestland was also issued as communal land title as well as 84 conservation and protection plots were classified and established, and the areas cover 352,939 hectares.

Geographically contiguous village forestry sites were recognized /promoted to form an organic part of two BD corridors that are designed to link critical fragmented habitats together. In addition, there has been the development of geographic networks of at least 69 village forestry sites as part of BD corridor protection and sustainable use system.

³³ https://laoeff.org/la/wp-content/uploads/formidable/47/LENS2_DOE-MAF-Midterm-Report-Jan-to-Jun-2018.pdf

³⁴ <https://www.gmsbccLao PDR.org>

National Target 13 [1.5.3]: The extinction of at least 5 priority species (to be determined from the Lao Red lists) is effectively prevented through better law enforcement and in situ and ex situ conservation [1.5.3 (a); 1.5.3 (b); 1.5.3 (c); 1.5.3 (d)].

Responsibility for Wildlife Law enforcement is complicated in Lao PDR and many sectors and agencies at the both the central and provincial have a role in contributing to law enforcement including both national and provincial Offices of Forest Inspection, The Customs Department, Police. Recently however, through national and provincial cooperation and coordination Lao PDR has made a significant commitment to wildlife law enforcement. Prime Minister's Order No. 05 was issued on May 8th, 2018 and directs Ministers, Heads of Ministry-Equivalent Organizations, the Vientiane Capital Governor and Provincial Governors across the Lao PDR to take strict action on wildlife law enforcement, compliance with national laws on the management and inspection of wildlife trade, and commitments to international laws.

Other initiatives include the strengthening of capacity for wildlife and aquatic law enforcement in several target provinces such as: Bolikhamxay, Huaphanh, Khammouane. Several activities have been targeted at capacity building for the staff of the Department of Forest Inspection (DOFI), POFI, and the district level offices of these agencies³⁵. There has also been significant action to also support the Lao Wildlife Law Enforcement Network (LAO-WEN) at the provincial and district level call P-WEN and D-WEN as well (DOFI, 2018).

In addition, the Customs Department is participating in the project and is providing support on combating transnational trade in illegal wildlife and timber trade and law enforcement. For instance, several activities have improved the functional capacity for Lao-WEN strategy including the Customs wildlife law enforcement and anti-smuggling strategy (CWLAS). For anti-smuggling, the Standard Operating Procedure (SOP) and guidelines for the Lao Customs Department's response to illicit wildlife trafficking occurring across international borders was developed³⁶.

National Target 14 [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 [1.5.4 (a); 1.5.4 (b)]

Traditional Medicine Center of Ministry of Health together with concerned organizations in the province and districts have defined more than 16 areas for medicine plants preservation and management. Plant checks list and inventory of each site was made. Some provinces have developed a book collection of Medicinal Plants of the province and implementing process to disseminate this information to the general populace. However, no actions have yet been taken to actively implement protection measures for these areas.

There is only one botanical garden in Lao PDR, located in Luang Prabang Province, which opened for the public in 2016³⁷. Pha Tad Ke has established with many partner organizations for the purposes of research and public education. This botanical garden aims to provide research and education on flora of Lao PDR, both in-situ and ex-situ plants, and to promote sustainable ecosystem preservation including eco-tourism.

³⁵ https://laoepf.org.la/wp-content/uploads/formidable/47/LENS2_DOFI-Annual-Report-2017.pdf

³⁶ https://laoepf.org.la/wp-content/uploads/formidable/47/LENS2_LCD-Midterm-Report-Jan-to-Jun-2018.pdf

³⁷ <https://www.pha-tad-ke.com>

Additionally, The National University and MoNRE are in the early planning stages for the establishment of an additional botanical garden near the urban center of the capital. Dong Mak Khai Protected Areas could be a botanical garden for research and education, and public services.

National Target 15 [1.5.5]: Improved regulations are enforced, and capacities improved to protect plants (including rice) and animals in priority areas from alien species invasion [1.5.5 (b); 1.5.5 (a)].

To establish effective enforcement of the Biotechnology Safety Law (2014), and the implementation of national biosafety framework, several activities have been implemented. For instance, the Ministry of Science and Technology have developed and established the Molecular Laboratory-GMO Detection was developed. In addition, Books, Poster, Brochure, Newsletters, VDO have been developed, and the national report on Nagoya protocol have been developed and submitted. Another, in 2018 Lao PDR has organized the international workshop on implementation of the Nagoya Protocol.

There does not appear to be a nationally, or Province based Invasive Alien Species Eradication programs.

NT16 [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 [2.1.1 (a)].

The GoL recognizes that Local community have right to access to the forest resources. They are harvest timber for house building as a customary practice, Forests are considered as the supermarket for local community livelihood, Villagers are harvesting NTFPs for their household consumption and sale in the local market for cash income generation. Moreover, bamboo, rattan can be utilized different types of handicraft products.

There is no nationwide consistent program that considers the socioeconomic contribution of biodiversity to the reduction of poverty. However, both the TABI and LENSII projects have subprograms that actively integrate biodiversity protection with socio economic development and poverty reduction (see the TABI and LENS II case studies)

National Target 17 [2.1.2]: Mainstream the Integrated Spatial Planning (ISP) in the development of cities and rural areas for sustainable utilization

General Assessment: The measures undertaken for the Action relating to this Target are considered at best to be partially effective

A key part of the response to this target is the New Land Management Resolution, which was endorsed by the central party committee in the year 2017 (LPRP, 2017). After that the national land policy was presented passed to the national assembly sessions. The National Land Policy was approved by the National Assembly in 2018. The implementing agency and committees for national land policy implementation is set.

In general Land management planning at the Provincial and District level is an ongoing commitment. Furthermore, many capacity building activities have been conducted at both the Provincial and District level:

- The PONRE, DONRE staff have been trained on Land Use Zoning, Land Use Planning, various GIS software and applications.
- A Land Use Management Manual has been developed and is applied for the actual field activities of several land use mapping projects.
- A system for land management and monitoring at the provincial level is in the process of development.
- Related to the ISP, GoL also developed the ATLAS information platform on social-economic development, environmental, agriculture sector³⁸.

NT18 [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 environmentally sound manner [2.2.1 (b); 2.2.1 (d); 2.2.1 (a); 2.2.1 (c)].

MONRE has updated new EIA decree, which was endorsed by GoL in January 2019. The new EIA decree has resulted in improvements to the ESIA process and has transferred responsibility to the provincial level for improved and streamlined implementation

At this stage almost all the provincial PONRE are actively implementing the new EIA using the IEE guidelines. PONRE staffs have been trained on ESIA general technical guidelines (writing, reviewing and monitoring). PONRE also support the DONRE for ESIA capacity building. The compliance, and the ESMMP protocols and processes have been updated with a particular focus on hydropower, mining, and road projects. MONRE have updated of existing guidelines and/or development of new specific guidelines on ESIA preparation and mitigation measures for (a) mining exploration and exploitation, (b) construction and operation of hydropower projects, and (c) construction and operation of road projects³⁹.

The NUoL, Faculty of Environment Science is also building capacity for technical knowledge of EIA and has provided 5 Training course manuals on (energy, mining, agriculture, industrial and infrastructure development) have been developed, particularly methodologies supporting EIA⁴⁰.

In addition, the provincial level administrations are now responsible for IEE and each have established an IEE committee. PONREs have also undertaken roles on IEE including:

- Provided the capacity for the PONRE and DONRE staffs,
- Conducted the monitoring activities of the investment project in the province.
- Verify the IEE certification, and
- Developed the investment datasheet at the province, and entry the investment data and report to MONRE⁴¹
- Carry out the assessment and collect the information of the investment project existing in their provinces.

National Target 19 [2.2.2]: Corporate Social Responsibility (CSR) and BD concerns are incorporated in the internal code of conduct (or agreed standard business practices)

³⁸ <http://www.decide.la/en/publications#reports>

³⁹ http://investLao PDR.gov.la/images/sampled/ESIA-IEE/ESIA_Ministerial_Instruction_Eng.pdf

⁴⁰ https://laoepf.org.la/wp-content/uploads/formidable/47/LENS2_FES-NUOL-Midterm-Report-Jan-to-Jun-2018.pdf

⁴¹ <http://www.investLao PDR.gov.la>

among companies in at least 5 key industries (energy, agriculture, forestry, tourism and chemical) [2.2.2. (a); 2.2.2. (b)].

The major relevant environmental regulations in Lao PDR are the Environmental Protection Law (EPL) of 1999 as amended in 2013 and the Lao IEE instruction of 2013. In general, some investment companies strictly follow the regulations and ensure environmental compliance. In particular, hydropower, and mining companies have the highest level of compliance and provide funds for a village resettlement program, and support for alternative livelihood improvement. In general, for these sectors the community that is impacted by the project receives fair compensation. But most sectors do not closely adhere to the environmental regulation and do not follow the ESMMP framework. For example, the overuse chemical pesticides used in large-scale banana plantations are harmful to the some of the surrounding local communities.

The National University of Lao PDR (NUoL) has established a center for Capacity Building Project on Social Safeguard Education for the Faculty of Social Sciences. The NUOL has also implemented other programs such as developing a Master program majoring in Resettlement Management Areas; Established a research and training center for Social Impact Assessment (SIA) and Resettlement Management (RM) at the Faculty of Social Science, It has also established four research proposal related to SIA & RM; and 92 (19 Females) have been trained on social safeguards, SIA, and RM.

National Target 20 [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.

The Lao National Framework on the Access to Genetic Resources and the Fair and Equitable Sharing of Benefit Arising from their Utilization has been developed. The detail guideline, books, Brochure, Poster, and VDO on ABS is being developed and will be disseminated to the general public.

“Generally, there is an existing procedure of permitting system that are concerned with traditional knowledge or traditional medicine. Local communities are included and invited to participate in related activities; e.g. medicinal process that we include them in the survey; head of village usually tasked to call other members of communities to join the activities. Moreover, licensing/permitting system for the use of natural resources at the level of provinces/prefectures also exists. In addition, Drug and Medical Product Law (2011) covers traditional medicine that registrations for both imported products and local traditional medicine are requested for applying the permission from Department of Food and Drug, Ministry of Health” (<https://absch.cbd.int/countries/LA>).

“Under the National ABS Framework (2013) the benefits sharing from the utilization of traditional knowledge associated with genetic resources are also shared in a fair and equitable way with indigenous and local communities holding such knowledge and that such sharing should be upon mutually agreed terms. Specific provision on Traditional Knowledge is highlighted in Chapter I of Government ABS policy under 1.2.6”.

The National ABS Framework (2013) provides comprehensive guidelines on traditional knowledge associated with genetic resources held by indigenous and local communities is accessed with the prior and informed consent or approval and involvement of them⁴².

⁴² <https://absch.cbd.int/countries/LA>

National Target 21 [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.

General Assessment: The implementation of the one National Action for this Target is considered to have been at best partially effective

The Biosafety law and Lao National Framework on the Access to Genetic Resources and the Fair and Equitable Sharing of Benefit Arising from their Utilization were developed by MOST. The guideline, books, brochure, poster, and VDO on ABS is being developed and then will share with the public⁴³.

“The country now is in the process of drafting the ABS Decree which are extended from Article 22 and Article 24 on Traditional Knowledge and Access to and Benefit sharing of GR respectively under Biotechnology Safety Law (2014). In the Article 22 provision is highlighted the use of resources consistent with environmental conditions, conservation, and the sustainable use of genetic resource, and shall share benefits equally and legitimately, as well as being able to access the transfer of relevant biotechnology appropriately”⁴⁴.

“Contracts and/or agreements, for example, MOA, MTA, and MOU are applying into the utilization of genetic resources and traditional knowledge associated with genetic resources that lay down the terms and conditions for the research activities. Based on the NP provision, the agreements might be seen as prior informed consent equivalents and use for permission as well mutually agreed terms”.

National Target 22 [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 conventions [3.1.3 (a); 3.1.3 (b)]

The information platform has been developed. Phakhaolao⁴⁵ has included in several information related to the domestic plants that can be benefit to the public.

There is a paucity of data on biodiversity within Lao PDR and there has been no progress in terms of systematic collection and dissemination on data relating to any trends concerning biodiversity in Lao PDR.

National Target 23 [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. [3.1.4 (c); 3.1.4 (a); 3.1.4 (b); 3.1.4 (e)]

There has been very limited progress and no National research program is in placed or planned in this area as funding and human resource capacity constraints are always a problem for developing countries in terms of research and access to the latest information on good practice biodiversity Management. Nevertheless, there are several programs that are aimed at improving the knowledge base.

⁴³ <https://absch.cbd.int/countries/LA>

⁴⁴ <https://absch.cbd.int/countries/LA>

⁴⁵ <https://www.phakhaolao.la/en>

Within the Nakai-Nam Theun NPA There are four main key research topics. These are (1) *Glyptostrobos pensilis* program: (in collaboration with University of San Francisco, Columbia University and Royal Botanic Garden Edinburgh); (2) Elephant survey (in collaboration with University of Missouri and Nam Theun Power Company); (3) Activities in collaboration with Saola Working Group; (4) Activities implemented by Project Anoulak: on Primate program, Environmental DNA program: (in collaboration with VigiL/FE and Beauval Nature), and wildlife monitoring with camera-trapping.⁴⁶.

National Target 24 [4.1.1]: Key civil service personnel from key agencies demonstrate improved knowledge and skills in biodiversity planning and implementation [4.1.1 (b); 4.1.1 (a)]

The two National Actions related to this target relate to the development of a specific NBSAP implementation training strategy and program and the development of an Environmental awards program. No specific measures were reported for either of these two Actions.

Although, there is no specific NBSAP wide implementation-training program there are a range of training programs that are relevant to several the Actions within the NBSAP. For example, MAF has trained NPA staff on Protected Area Management and the Lao-WEN. MAF have also allowed several staff to continue their higher education and research at the University of Lao PDR.

The Ministry of Science and Technology (MOST) in conjunction with a range of international partners has strongly upgraded their staff knowledge and capacity on Access and Benefit Sharing and biosafety, as well as laboratory processes on molecular biology. Whilst MONRE have provided training and capacity building for PONRE, DONRE staff on a range of environment related topics especially strengthening capacity for EIA and ESMMP, pollution control and monitoring.

National Target 25 [4.1.2]: Increased public awareness on the value of biodiversity among targeted stakeholder groups including those in 24 NPAs. [4.1.2 (b); 4.1.2 (a)];

The two Actions under this Target relate to increased awareness rising of biodiversity and the implementation of communication strategies in Pilot sites. At present it appears that no action has been undertaken on the second of these National Actions.

In terms of awareness raising the major activity to this has been the National Project *Contributing by Constituency Building of Public Administration on Environment, Biodiversity and Wildlife Issues sub-project* (funded by the EPF). This project includes training of Key Civil Servants on the dissemination of biodiversity related information to the public. At this stage under this program training has been provided to over 114 staff (including 22 female staff). This has resulted in 4 articles on sustainable PA, Wildlife, and Fisheries published in Administrator Magazine, news disseminated on radio system 3 times, and TV 4 times. Lao National TV Program is also broadcasting an environmental program.

National Target 26 [4.1.3]: The value of biodiversity and its sustainable use is incorporated in formal and informal education programs [4.1.3 (a); 4.1.3 (b)]

General Assessment, the measures undertaken for this National Action are considered to be effective.

⁴⁶ https://laoepf.org.la/wp-content/uploads/formidable/47/LENS2_WMPPA-Annual-Report-2017.pdf

The major contribution to this target is through the Human Resources Development for Protected Area and Wildlife Management Program implementing by the Faculty of Forest Science (FFS), NUoL. This has included⁴⁷:

Short term training course and manual have been developed (PA Management, Wildlife Management, and Livelihood. 576 (164 females) people have been trained in the program. PhD, MSc, BSc total 7 Students received scholarship and studying in Thailand, Lao PDR.

- An Undergraduate Curriculum (Forest and Wildlife Protection Major) has been developed and officially approved by the Ministry of Education and Sport (MOES), and currently available for student enrollment at the university, a syllabus of 39 courses subject developed, 26 course manuals are developed.
- Training has also been provided in applying METT to Protected Area Staff. To date around 23,000 ha of Phou Chomvoy Protected Area in Bolikhamxay province and 8,000 ha of Phou Khao Khouay NPA have been assessed using this tool.
- Furthermore, the Faculty of Economic and Business, NUoL has developed a program for human resources development in environmental & natural resources economics relevant to PA and wildlife This program has developed:⁴⁸
- 11 topics in environment and natural resources economics are presented in the national & international conferences.
- Four articles related to the environmental and natural resources economic have been developed and submitted to the international journal for publication.
- Status assessment of wildlife and threaten measuring of 26,600 ha of Phou Chomvoy and Phou Khao Khouay PAs was conducted.
- Forest loss rate assessment is in planning stage.

The Faculty of Natural Sciences, NUoL is also looking at Capacity Enhancement of Lao PDR's Natural Science Related to Environmental Protection and have developed a number of new curricular for Science Degrees⁴⁹, Including:

- a Master program on Chemistry developed and approved by the Ministry of Education and Sport (MOES) in 2017 and opened in 2018, in total 11 students studying this program.
- More than 9 text books (Bio-Technology, Environment Chemistry, Soil pollution from chemicals) are under review and will be published in 2018-2019;
- 30 posters related to biology, chemistry and physic is ongoing prepared and to be exhibited in 2019. 31 faculty members,

In terms of informal education programs 16 provincial staff and villagers have undergone informal training for the Phou Chomvoy Protected Areas in Bolikhamxay province with the training covering a number of topics including: diversity of animals and rare animals, plants and fungi; local geology, characteristics of water and soil qualities in protected area; the solar light intensity to be used as renewable energy,. This program was delivered in learning by doing approach and during the biological survey, more than 102 samples of insects and plants

⁴⁷ https://laoepf.org.la/wp-content/uploads/formidable/47/LENS2_FFS-NUOL-Annual-Report-2017.pdf

⁴⁸ https://laoepf.org.la/wp-content/uploads/formidable/47/LENS2_FEB-NUOL-Annual-Report-2017.pdf

⁴⁹ https://laoepf.org.la/wp-content/uploads/formidable/47/LENS2_FNS-NUOL-Annual-Report-2017.pdf

were collected; In addition, 128 samples of aquatic resources, 67 fungi, 9 water and 11 soil samples were collected and analyzed in the laboratory.

National Target 27 [5.1.1]: Sustainable financial mechanism for timely obtaining and transparent utilization is developed and implemented. [5.1.1 (b); 5.1.1 (c); 5.1.1 (d); 5.1.1 (a)]

The National REDD+ strategy has been developed. MAF has also developed REDD+ pilot project in 6 target provinces. Provincial REDD+ Action Plan (PRAP) of the 6 northern provinces was developed. REDD+ readiness activities have been developed. The F-REDD is supporting by JICA is focusing on the shifting mosaic forest areas and protection forest in Luang Prabang Province. The pilot REDD+ project CliPAD⁵⁰ supported by German development bank (KfW) is being undertaken in Nam Et- Phou Louey Protected area in Huaphan Province⁵¹. Several pilot REDD+ projects have been developed in Lao PDR (<http://dof.maf.gov.la/redd/en/projects/>). The expectation is that funding for future REDD+ activities and projects would come from the Green Climate Fund (GCF).

Lao PDR is also looking at the possibility of using a Payment for Ecosystem Services scheme. Currently the DOF is hoping to establish a consultancy to develop a PES methodology that can be applied to the Theun Hin Boun Hydropower development, Nam Theun 2 Hydro Power Company⁵². PES concepts are also being considered for ecotourism activities in the Nam Nern PA Night Safari⁵³.

National Target 28 [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; [5.1.2 (a); 5.1.2 (b)]

TABI has contributed to the development of the National Biodiversity Strategic Action Plan, The National Agrobiodiversity Action Plan of MAF and 2 Provincial Biodiversity Strategic Action Plans in Luang Prabang and Xiengkhouang provinces. Moreover, a provincial based Biodiversity Strategy and action Pan PBSAP for Attapeu province has also been developed.

National Target29 [5.1.3]: Integrated strategy for tapping multiple funding sources (internal, external & innovative) in place so that funding windows for BD (Agro-BD) increase by at least 50% by 2020. [5.1.3 (a); 5.1.3 (b)]

There is no integrated strategy in place to secure funding for biodiversity or agrobiodiversity in Lao PDR. The major Funding for the NBSAP is via the GoL annual Budget allocations. However, the EPF does raise funds from projects in the Private Sector and there is significant funding towards specific projects from International donors. However, in general, little progress has been made towards this Target.

At present the major financial channels to implement biodiversity or agrobiodiversity projects are from the government annual budget, the contribution from the private companies through the EPF, funds from international donors to EPF as LENS2, and funding from international organizations and development partners that supporting the single project of the sector.

⁵⁰ <http://clipad-Lao PDR.org>

⁵¹ <https://www.giz.de/en/worldwide/17463.html>

⁵² <http://www.namtheun2.com>

⁵³ <http://www.namet.org/wp/nam-nern-night-safari/>

SECTION 3: ASSESSMENT OF PROGRESS TOWARDS EACH NATIONAL TARGET⁵⁴

3.1 Overview of National Strategies, Targets and Actions Implementation status

Overall, for each of the National Strategies there has been reasonable progress towards commencement or implementation of the majority of associated National Actions and it is estimated that around 58% of the actions are actively under implementation, 36% are in the planning or early implementation stage and only 6% are considered to have not started implementation. For National Strategies 1, 2 and 4 all National Actions are either actively being implemented or are in the planning stage. For Strategies 3 and 5 around 11 and 38% respectively are yet to have any activities towards implementation (see Fig 2.1).

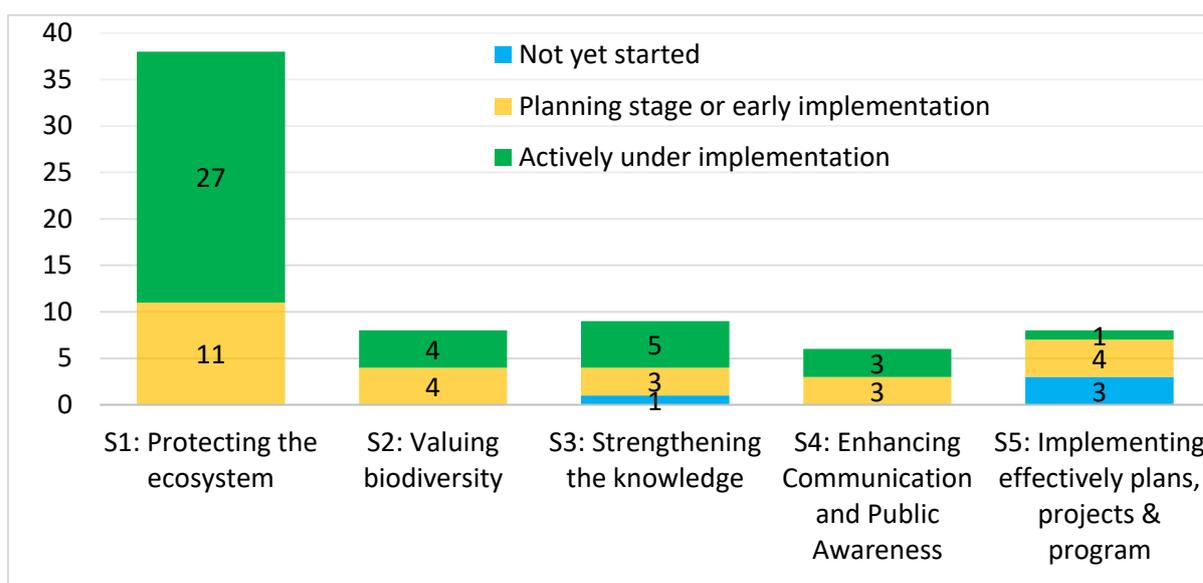


Figure 3.1 Progress in implementation towards National Strategies

In terms of the implementation status of the National Targets, Figure 3.2 below shows an assessment of the progress of each of the 69 National Actions and how they relate to the 29 National Targets. From this, it can be seen, that 9 (31%) of the National Targets have all relevant National Actions actively under implementation and over 75% of National Targets have a least one of the National Actions actively under implementation. Only one National Target has no National Actions that are either actively being implemented or in the planning stage.

⁵⁴ Lao PDR has also completed the CBD 6NR online reporting tool. The CBD online reporting tool enables Parties to enter, review and, when appropriate, submit information requested in the guidelines for the sixth national report (decision XIII/27). The lao PDR ORT can be found here

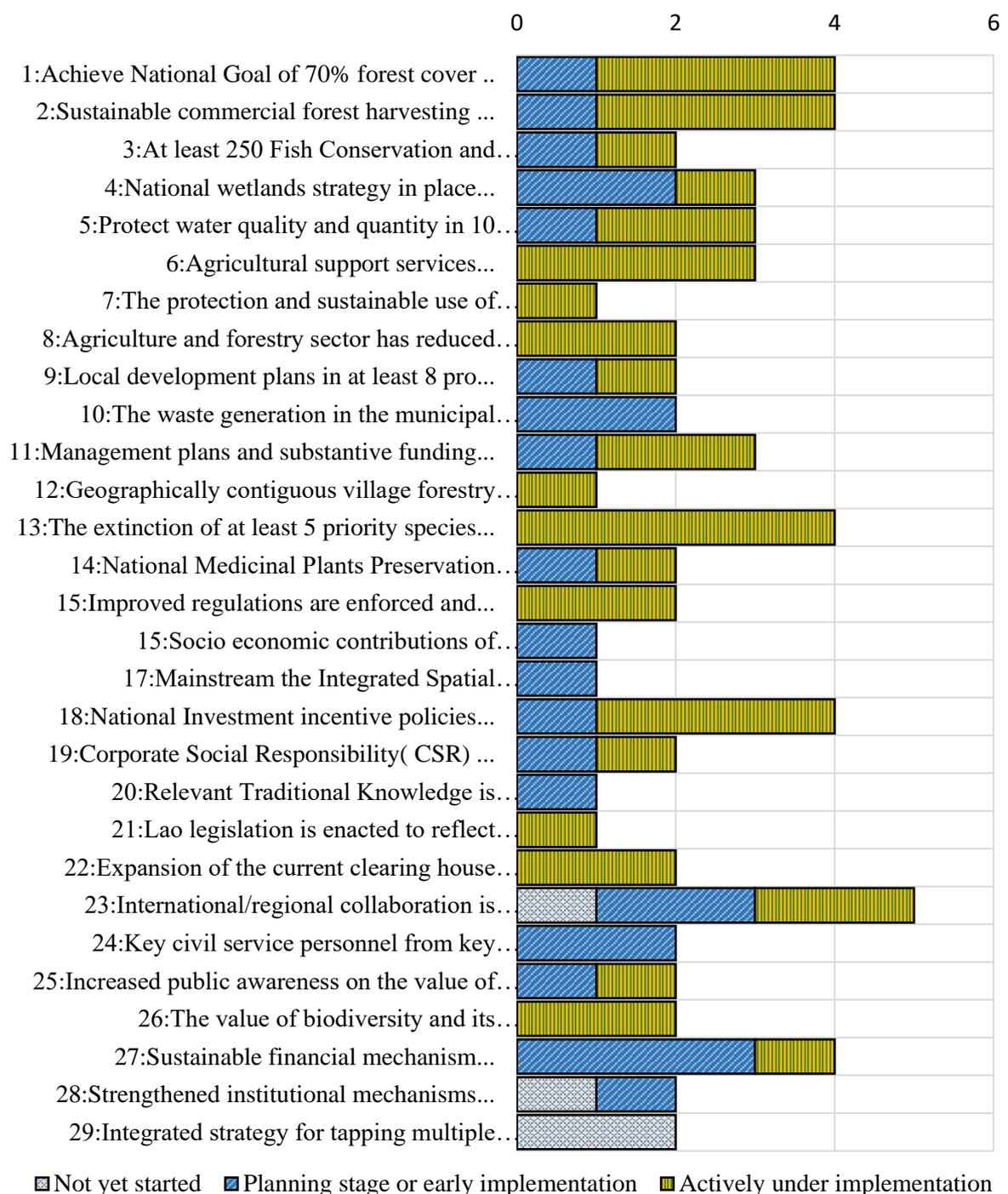


Figure 3.2 Progress in implementing Targets and Actions

3.1.1 Overview of the Effectiveness of National Target and Action Implementation

During the development of the 6th National Report an assessment of the effectiveness of each of the 69 National Actions were undertaken via a process of extensive stakeholder working group consultation and evaluation led by the 6NR National Consultant. Several stakeholder consultation workshops were held during 6NR preparation progress. Representatives from the key government sector agencies (MoNRE, MAF, MOST, MEM, MPWT, MoICT) as well as representatives from Civil Society: University of Lao PDR, CSOs, NGOs (WWF, WCS, IUCN) were joint participants on the progress. In addition to this the GoL established a 6NR National Technical Working Group to assist the 6NR National Consultant to evaluate effectiveness of implementation. The TWG was designed to represent a cross section of

relevant stakeholders from Government and Civil Society. The TWG was made up of 6 subsections relating to the varying groupings of sectors with Lao PDR. Appendix A gives details of the membership of each of the 6 sub-groups of the TWG.

During these stakeholder consultations the existing NBSAP, 5NR, The CBD Online Reporting Tool and the structure and outline of the 6NR were presented. Stakeholders were helped to identify the sections and information within the NBSAP that were relevant to their sector and where updated information was needed for the 6NR. TWGs members and technical staff of relevant government departments were trained and used spreadsheet/ online reporting tool.

The data sheet and information related to each national target were analyzed and discussed during the consultation workshops. The TWGs then identified the relationship of TWGs, and technical staffs that links to each action prescribed in the 2nd NBSAP. The TWGs grouped the information requirements according to the 6 sector working groups and were responsible for data entry, data analysis, and also provide the availability of information and data of their sectors that links to national actions (See summary of the consultation workshops as Appendix B). The 6NR Report National Consultant and the TWG then used their networks to gather available information from a variety of sources including available annual reports, progress reports and other technical and grey literature held by their agencies.

3.1.2 Methodology for assessing the targets including the involvement of stakeholders

For the Assessment of effectiveness, the Information for 6NR was obtained from various sources and also provided by relevant key government organizations/sectors. The implementation status of each national target and national action was described based on the information provided by TWGs members, technical staff and information summarized from relevant sectors by the working group members. The reports of the government sectors, reports of the related projects were assessed, reviewed and summarized based on the output, outcome, and achievement of the projects that showed in the report. These were weighted for each action if it related and then combined for the national target implementation progress.

Unfortunately, the NBSAP did not mandate or establish any monitoring and evaluation system or set M&E indicators for each national action and target. This made it difficult to provide objective and quantifiable assessments of the degree of commencement and level of effectiveness. This was also compounded by the fact that many of the national actions have links to the mandate of a range of government and civil society agencies. Therefore, the TWGs had to develop subjective weighting where the effectiveness judgment of an individual project or report that was related to a national action was also weighted on the relative output, outcome and achievement of the overall achievement of the target. Actions were assessed and classified in terms of 3 categories:

1. Measure Taken has been effective
2. Measure Taken has been Partially Effective
3. Measure effectiveness is unknown

The judgment was then checked and confirmed by the sub-group of each sector that related to the actions [TWG members, technical staffs, national consultants] during the training workshop and the data was entered into the online reporting tool/ Excel Spreadsheet.

As it was difficult to describe each action in detail and many programmes and projects were linked to multiple national actions it was decided to develop several case studies that both

outlined the problems facing biodiversity conservation in Lao PDR and the types of actions that being undertaken

Although there has been considerable progress in commencement of, or planning for, implementation of the NBSAP National Actions, how effective those actions are towards meeting their goals is somewhat lacking. Figure 2.3 shows the distribution of the assessment of effectiveness of National Target implementation in relation to the 29 National Targets. Table 3.1 provides details on the ratings for each of the 69 Actions and 29 National Targets.

A minority of National Actions (26%) were assessed as being effective. The majority 74% were assessed as being either partially effective or unknown. For 16% of the actions, there was not enough data or the time lapse since commencement was too short to make an assessment and 58% were only partially effective.

3.1.3 Gender issues and the Stakeholder Process

Unfortunately, the NBSAP does not clearly identify the various roles and issues relating to gender and equitable sharing of responsibilities and roles. Nor did it outline how these issues should be accommodated in the future. Nevertheless, it was important that the 6NR attempt to address this issue in some manner. A key issue was to ensure that there was adequate representation of all genders in the stakeholder working groups and the TWGs. Also, a Gender workshop, specifically on Gender Mainstreaming in NBSAP, was held. Many women were active in this process but more needs to be done on this issue. The 6NR National Consultant also ensured that good representations of women were actively involved in the consultation process. Additionally, IUCN in Lao PDR is now supporting a programme aimed at mainstreaming gender issues in NBSAP implementation.

There are many reasons why most actions are assessed as only partially effective. In general, there are significant constraints on effective implementation relating to a range of technical, financial and capacity constraints as are common for many middle-income countries. The obstacles and barriers can be classified into 4 main areas:

- Technical constraints and capacity shortfalls
 - Information gaps
 - Poor data quality and coverage
 - Lack of tools for data storage and sharing
- Financial Constraints
 - Lack of national funding sources
 - Project based Dependence on Donors
- Human Resource Constraints
 - Limited staff numbers
 - Low numbers of well trained and capacitated staff
- Governance
 - Cross sector coordination is weak
 - Implementation is often lacking
 - Limited stakeholder engagement

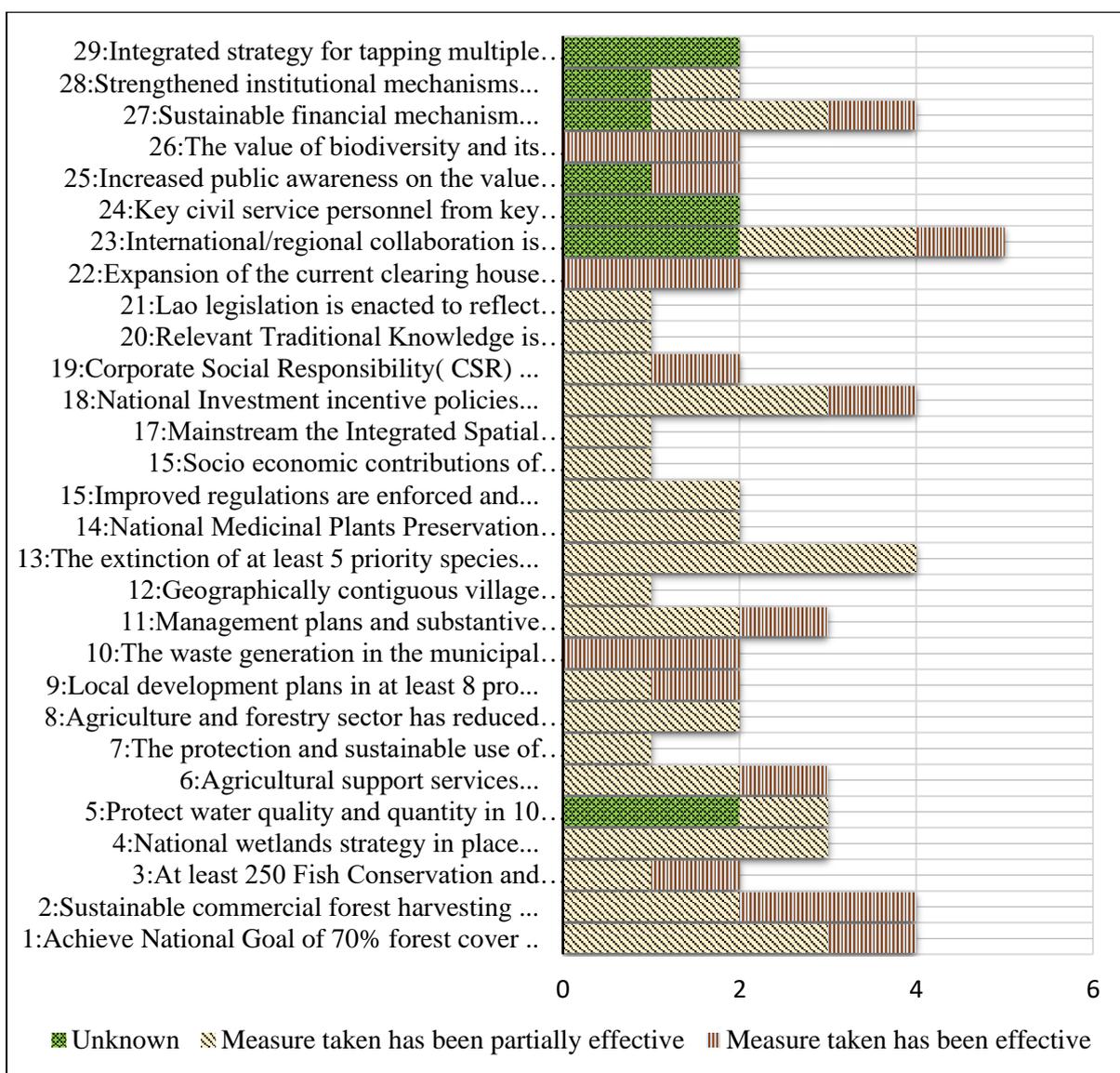


Figure 3.3: An evaluation of the Effectiveness of progress towards National targets

The Government of Lao PDR recognizes that the effectiveness of progress on implementation of the NBSAP and the ABTs has a best been partially effective. In order to address this the GoL is working with UNDP to develop a concept project for funding through international sources such as GEF 7 that specifically target the Biodiversity and Land Degradation Focal Areas, as well as accessing the Set Aside Funds for the Impact Programme 1 on Land Use/Land Restoration and Impact Programme 3 on Sustainable Forestry. These projects will focus on the implementation of the approved Lao PDR National Biodiversity Strategy and Action Plan (NBSAP 2016-2025) with the following areas to be three Components and related Outputs:

Output 1: Decision-making tools

Wildlife conservation targeting selected endangered species, baseline data
Saola conservation programme Mapping of forest areas, GIS, Wildlife Surveys

Output2: Enhancing Policy Mechanisms

Access to Benefit Sharing (ABS) (regulatory framework, capacity building)
Clearing House Mechanism (establishment, population of data, information sharing) National reporting to conventions

Output 3: Protected Areas Management

Conservation of Laving-Lavern PA and Kunsay-Nongma PA Sustainable financing for PAs Community engagement for improved livelihoods

The following section provides both general assessment of progress for each of the 29 National Targets across the 69 National Actions with Table 3.1 providing information on the relevant National Strategy and Target for each Action and an assessment of:

- Progress of implementation,
- Effectiveness of implementation,
- Progress in implementation
- Progress towards implementation of Sub element of ABT and
- Assessment of level of Confidence

Appendix C provides a summary of the obstacles in the way of effective implementation as well as the capacity needs for future effective implementation for all 69 of the National Actions.

3.2 A review of progress for each of the National Targets and Actions

National Target 1⁵⁵: Achieve National Goal of 70% forest cover of the total national area by 2020

There are Four National Actions that are part of National Target 1 (NT1). The Relevant National Actions are [1.1.1 (a); 1.1.1 (b) 1.1.1 (c) 1.1.1 (d)].

General Assessment: Mostly partially effective but significant gains have been made with active implementation of new activity in recent period

National Target 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

There are 3 National Actions [1.1.2 (c), 1.1.2 (d), 1.1.2 (b), 1.1.2 (a)]

General Assessment: The effectiveness of the implementation of these National Actions is mixed, with half of the Actions considered effective and half considered being partially effective.

National Target 3: At least 250 Fish Conservation and breeding sites (that include local /indigenous species) are established and are recognized/ supported by stakeholders living in the watersheds where these sites belong

Two National Actions [1.2.1 (a), 1.2.1 (b)]

General Assessment: Most of the National Actions relating to this Target are being or have been implemented effectively.

National Target 4 [1.2.2]: National wetlands strategy in place while management plans with substantive funding are implemented in at least 12 important wetlands sites

⁵⁵ Table 2.1 in Section2 lists all Targets from NBSAP 2016 -2025. For this report the Targets have been numbered from 1 to 29. A comparison of the target numbers from the NBSAP and this report is also included in Table 2.1

Three National Actions [1.2.2 (a); 1.2.2 (b); 1.2.2 (c)]

General Assessment: The implementations of the actions under this Target have are assessed as being only partially effective.

National Target 5 [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

There are 4 National Targets [1.2.3 (a), (1.2.3 (b); 1.2.3 (c)]

General Assessment: more than half action still unknown, since the results of activities have not been evaluated

National Target 6 [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

There are 3 National Actions [1.3.1 (b); 1.3.1 (a); 1.3.1 (c)]

General Assessment: most of the activities have been implemented partially effectively

National Target 7 [1.3.2]: The protection and sustainable use of biodiversity rich agricultural landscapes demonstrated in at least 1 site per province

One National Action (1.3.2)

General Assessment: The implementation of the one National Action for this Target is considered to have been partially effective.

National Target 8 [1.3.3]: Agriculture and forestry sector has reduced the use of hazardous agro-chemicals

There are 2 National Actions [1.3.3 (a); 1.3.3 (b)]

General Assessment: most of the activities relating to the National Actions in this Target have been partially effectively

National Target 9 [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.

There are 2 National Actions [1.4.1 (a); 1.4.1 (b)]

General Assessment: One of the Actions is considered to have been implemented effectively the other is unknown.

NT10 [1.4.2]: The waste generation in the municipal areas across the country is reduced

There are 2 National Actions [1.4.2 (b); 1.4.2 (a)]

General Assessment: Both of the National Actions implementation is considered effective.

National Target 11 [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.

There are 3 National Actions [1.5.1 (c); 1.5.1 (a); 1.5.1 (b)]

General Assessment: For most of these Actions, implementation has only been partially effective.

National Target 12 [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

There is 1 National Action

General Assessment: Most of the Actions relating to this Target are considered to be partially effective

National Target 13 [1.5.3]: The extinction of at least 5 priority species (to be determined from the Lao Red lists) is effectively prevented through better law enforcement and in situ and ex situ conservation.

There are 3 National Actions [1.5.3 (a); 1.5.3 (b); 1.5.3 (c); 1.5.3 (d)]

General Assessment the measures undertaken for the Actions under this target are considered partially effective

National Target 14 [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

There are 2 National Actions [1.5.4 (a); 1.5.4 (b)]

General Assessment: The measures undertaken for the Actions relating to this Target are considered to be partially effective

National Target 15 [1.5.5]: Improved regulations are enforced, and capacities improved to protect plants (including rice) and animals in priority areas from alien species invasion

There are 2 National Actions [1.5.5 (b); 1.5.5 (a)]

General Assessment: The measures undertaken for the Actions relating to this Target are considered at best to be partially effective

NT16 [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

There is one National Action [2.1.1 (a)]

General Assessment: The measures undertaken for the Actions relating to this Target are considered at best to be partially effective

National Target 17 [2.1.2]: Mainstream the Integrated Spatial Planning (ISP) in the development of cities and rural areas for sustainable utilization

There is 1 National Action

General Assessment: The measures undertaken for the Action relating to this Target are considered at best to be partially effective

NT18 [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 environmentally sound manner

There are 3 National Actions [2.2.1 (b); 2.2.1 (d); 2.2.1 (a); 2.2.1 (c)]

General Assessment: The majority of measures undertaken for the Actions relating to this Target are considered effective

National Target 19 [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)

There are 2 National Actions [2.2.2. (a); 2.2.2. (b)]

General Assessment, About half of the measures undertaken for the Actions under these targets are considered effective. However, compliance with these concerns is not consistent across all sectors.

National Target 20 [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

There is 1 National Action

General Assessment: The implementation of the one National Action for this Target is considered to have been at best partially effective.

National Target 21 [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

There 1 National Action

General Assessment: The implementation of the one National Action for this Target is considered to have been at best partially effective

National Target 22 [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 conventions

There are 2 National Actions [3.1.3 (a); 3.1.3 (b)]

General Assessment: The implementation of the National Actions for this Target is considered to have been at best partially effective

National Target 23 [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.

There are 4 National Actions [3.1.4 (c); 3.1.4 (a); 3.1.4 (b); 3.1.4 (e)]

General Assessment: The measures undertaken for the Actions relating to this Target are considered at best to be partially effective

National Target 24 [4.1.1]: Key civil service personnel from key agencies demonstrate improved knowledge and skills in biodiversity planning and implementation

There are 2 National Actions [4.1.1 (b); 4.1.1 (a)]

General Assessment: The effectiveness of measures undertaken for the Actions relating to this Target is unknown

National Target 25 [4.1.2]: Increased public awareness on the value of biodiversity among targeted stakeholder groups including those in 24 NPAs.

[There are 2 National Actions 4.1.2 (b); 4.1.2 (a)];

General Assessment, Progress on the Actions for the two Actions related to this Target are mixed. For one target there has been no activity and for the other some evidence that the limited program has been effective.

National Target 26 [4.1.3]: The value of biodiversity and its sustainable use is incorporated in formal and informal education programs

There are 2 National Actions [4.1.3 (a); 4.1.3 (b)]

General Assessment, The measures undertaken for this National Action are considered to be effective.

National Target 27 [5.1.1]: Sustainable financial mechanism for timely obtaining and transparent utilization is developed and implemented.

There are 4 National Actions [5.1.1 (b); 5.1.1 (c); 5.1.1 (d); 5.1.1 (a)]

General Assessment: The effectiveness of majority of measures for Actions under this target is either unknown or considered partially effective.

National Target 28 [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;

[There are 2 National Actions 5.1.2 (a); 5.1.2 (b)]

General Assessment: The effectiveness of majority of measures for Actions under this target are either unknown or considered partially effective

Table 3.1 Progress on the Implementation of the CBD in Lao PDR

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target * | Progress in implementing | Effectiveness of implementation | Progress in achieving sub-element of the Aichi | Level of confidence |
|--|---|----------------|-----|----------------|--|--|--|---------------------------------|
| Strategic Goal A: Cause and mainstreaming | | | | | | | | |
| 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 | 1 | 2 | 1 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 1.1.2 (b) | Update the Forest Strategy 2020 to incorporate experience and good practices leading to forest certification. | 1 | 2 | 2 | Planning stage or early implementation | Measure taken has been effective | Progress towards target but at insufficient rate | Based on comprehensive evidence |
| 1.1.2 (a) | Manage for sustainable forest production to cover at least 80% of production forests | 1 | 4 | 2 | Actively under implementation | Measure taken has been effective | On track to achieve target | Based on comprehensive evidence |
| 1.2.2 (a) | Formulate national wetlands inventory and strategy | 1 | 2 | 4 | Planning stage or early implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 1.4.2 (b) | Develop and implement awareness rising programs for 1) behavior change from traditional waste handling (burn, dump and throw away) to proper waste handling (source separation and storage) and 2) waste reduction through practicing 3 R's concept (Reduce, Reuse, and Recycle in Provincial capitals and larger towns in 18 provinces | 1 | 1 | 10 | Planning stage or early implementation | Measure taken has been effective | On track to achieve target | Based on partial evidence |
| 2.1.1 (a) | Documentation updating, communication of evidence and demonstration of application of biodiversity values and contributions towards poverty reduction | 2 | 2 | 16 | Planning stage or early implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 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 | 2 | 2 | 17 | Planning stage or early implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on limited evidence |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target * | Progress in implementing | Effectiveness of implementation | Progress in achieving sub-element of the Aichi | Level of confidence |
|------------|---|----------------|-----|----------------|--|--|--|---------------------------------|
| | areas – in combination with conservation of valuable ecosystems | | | | | | | |
| 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 | 2 | 2 | 18 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 2.2.1 (d) | Development of recommendations on how to adequately consider biodiversity protection in comprehensive land use planning protocols | 2 | 2 | 18 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on limited evidence |
| 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 | 2 | 3 | 18 | Planning stage or early implementation | Measure taken has been effective | On track to achieve target | Based on comprehensive evidence |
| 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 | 2 | 4 | 18 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 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 | 2 | 4 | 19 | Actively under implementation | Measure taken has been effective | No significance change | Based on limited evidence |
| 2.2.2. (b) | Promote the utilization of renewable energy for reducing forest loss and the releasing of carbon dioxide and methane into atmosphere | 2 | 4 | 19 | Planning stage or early implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 4.1.1 (b) | Training Needs Analysis and Training Program formulation for NBSAP implementation | 4 | 1 | 24 | Planning stage or early implementation | Unknown | N/A | N/A |
| 4.1.1 (a) | Establishment of Annual Environmental Recognition Awards Program for outstanding | 4 | 2 | 24 | Planning stage or early | Unknown | No significance change | Based on limited evidence |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target * | Progress in implementing | Effectiveness of implementation | Progress in achieving sub-element of the Aichi | Level of confidence |
|---|--|----------------|-----|----------------|--|--|--|---------------------------|
| | national and local civil servants as well as private citizens who have provided outstanding work on biodiversity Conservation | | | | implementation | | | |
| 4.1.2 (b) | Increased awareness and knowledge of the mass media regarding biodiversity values, conservation and sustainable use strategies. | 4 | 1 | 25 | Actively under implementation | Measure taken has been effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 4.1.2 (a) | Implementation of communication programs in pilot sites based on analysis of stakeholder attitudes | 4 | 2 | 25 | Planning stage or early implementation | Unknown | N/A | N/A |
| 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 | 4 | 1 | 26 | Actively under implementation | Measure taken has been effective | On track to achieve target | Based on partial evidence |
| 4.1.3 (b) | Development and piloting of a reflective teaching guides/training course for biodiversity education | 4 | 1 | 26 | Actively under implementation | Measure taken has been effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 5.1.1 (d) | Establish policy and guidelines for the application of the concepts of Payment for Ecosystem Services (PES) and Reduction of Emission from Deforestation and forest Degradation (REDD+). | 5 | 2 | 27 | Planning stage or early implementation | Measure taken has been partially effective | No significance change | Based on limited evidence |
| 5.1.2 (a) | Pilot preparation of participatory provincial level biodiversity planning in 3 provinces (PBSAP initiative). | 5 | 2 | 28 | Planning stage or early implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 5.1.2 (b) | Development of practical guidelines including minimum conditions for stakeholder consultation and participation in NRM/BD plans and decision making. | 5 | 2 | 28 | Not yet started | Unknown | N/A | N/A |
| | | | | | | | | |
| Strategic Goal B: Pressure and Sustainable Use | | | | | | | | |
| 1.1.1 (b) | Improvement of compliance monitoring and facilitation of private sector contribution to forest resources management and rehabilitation of damaged ecosystems | 1 | 5 | 1 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target * | Progress in implementing | Effectiveness of implementation | Progress in achieving sub-element of the Aichi | Level of confidence |
|-----------|--|----------------|-----|----------------|--|--|--|---------------------------------|
| 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.) | 1 | 5 | 1 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on comprehensive evidence |
| 1.2.1 (a) | Establishment and monitoring of Fish Conservation Zones (that include local/ indigenous species). | 1 | 6 | 3 | Actively under implementation | Measure taken has been effective | On track to achieve target | Based on comprehensive evidence |
| 1.2.1 (b) | Establishment and monitoring of watershed programs that incorporate systems wide support of fish breeding sites. | 1 | 6 | 3 | Planning stage or early implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 1.2.2 (b) | Development of implementing guidelines for the Fishery Law that consider biodiversity concerns | 1 | 6 | 4 | Planning stage or early implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 1.2.2 (c) | Facilitation of cooperative agreements with neighboring countries to more effectively conserve and manages fish resources in Mekong and other rivers | 1 | 6 | 4 | Actively under implementation | Measure taken has been partially effective | On track to achieve target | Based on comprehensive evidence |
| 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 change | 1 | 7 | 6 | Actively under implementation | Measure taken has been effective | On track to achieve target | Based on partial evidence |
| 1.3.1 (c) | Market studies and value chain analysis establishing commercial viability of and realistic options for local varieties and breeds. | 1 | 7 | 6 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 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 | 1 | 7 | 7 | Actively under implementation | Measure taken has been partially effective | On track to achieve target | Based on partial evidence |
| 1.3.3 (a) | Promote IPM (Integrated Pest Management) | 1 | 7 | 8 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target * | Progress in implementing | Effectiveness of implementation | Progress in achieving sub-element of the Aichi | Level of confidence |
|---------------------------------------|---|----------------|-----|----------------|--|--|--|---------------------------------|
| 1.3.3 (b) | Regulate the use of agro-chemicals | 1 | 7 | 8 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 1.4.1 (b) | Provision of training and advice on urban and industrial waste pollution prevention measures, especially on waterways /wetlands | 1 | 8 | 9 | Planning stage or early implementation | Measure taken has been effective | On track to achieve target | Based on partial evidence |
| 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 | 1 | 8 | 10 | Planning stage or early implementation | Measure taken has been effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 1.5.1 (b) | Assessment and program development for conserving Dry Dipterocarp Forests | 1 | 5 | 11 | Actively under implementation | Measure taken has been partially effective | On track to achieve target | Based on partial evidence |
| 1.5.2 | Development of geographic networks of at least 69 village forestry sites as part of BD corridor protection and sustainable use system. | 1 | 7 | 12 | Actively under implementation | Measure taken has been partially effective | On track to achieve target | Based on comprehensive evidence |
| 1.5.5 (a) | Identify, characterize and prioritize the invasive alien species | 1 | 9 | 15 | Actively under implementation | Measure taken has been partially effective | No significance change | Based on limited evidence |
| Strategic Goal C: Safeguarding | | | | | | | | |
| 1.1.1 (d) | Protection program for valuable forest ecosystems such as: Hing home forests (<i>Fokinia chinensis</i>), Long Leng forests (<i>Cunninghamia obtusa</i>), Mai Dou Lai forests (<i>Pterocarpus/Dalbergia</i>) and Mai Khangoung forests (<i>Dalbergia cochinchinensis</i>). | 1 | 11 | 1 | Planning stage or early implementation | Measure taken has been effective | Progress towards target but at insufficient rate | Based on comprehensive evidence |
| 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 | 1 | 13 | 6 | Actively under implementation | Measure taken has been partially effective | On track to achieve target | Based on partial evidence |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target * | Progress in implementing | Effectiveness of implementation | Progress in achieving sub-element of the Aichi | Level of confidence |
|--|---|----------------|-----|----------------|--|--|--|---------------------------|
| 1.5.1 (c) | PA Staff capacity Strengthening within 70% of Protected Areas | 1 | 11 | 11 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 1.5.3 (a) | Updating of the RED list | 1 | 12 | 13 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on limited evidence |
| 1.5.3 (b) | Capacity Development for law enforcement in support of national commitments to CITES. | 1 | 12 | 13 | Actively under implementation | Measure taken has been partially effective | On track to achieve target | Based on partial evidence |
| 1.5.3 (c) | Implementation of priority protection measures for seed sources of indigenous tree species seed resources. | 1 | 13 | 13 | Actively under implementation | Measure taken has been partially effective | No significance change | Based on limited evidence |
| 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. | 1 | 13 | 13 | Actively under implementation | Measure taken has been partially effective | No significance change | Based on limited evidence |
| 1.5.4 (a) | Prepare assessment, Conservation and Utilization program for medicinal plants including seed conservation. | 1 | 13 | 14 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 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). | 1 | 13 | 15 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 5.1.1 (b) | Piloting of REDD+ in areas of at least 8 biodiversity rich forest sites. | 5 | 11 | 27 | Planning stage or early implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| Strategic Goal D: Biodiversity benefits | | | | | | | | |
| 1.1.2 (c) | Review rural employment generation experience of NRM based enterprises and adoption of enhancement measures | 1 | 14 | 2 | Actively under implementation | Measure taken has been partially effective | On track to achieve target | Based on partial evidence |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target * | Progress in implementing | Effectiveness of implementation | Progress in achieving sub-element of the Aichi | Level of confidence |
|-----------|--|----------------|-----|----------------|--|--|--|---------------------------|
| 1.1.2 (d) | Strengthening of organizations dealing with shifting cultivation stabilization, and village forestry allowing for communities to sell wood of production forest. | 1 | 14 | 2 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 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 | 1 | 14 | 5 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 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 | 1 | 14 | 5 | Planning stage or early implementation | Measure taken has been partially effective | No significance change | Based on partial evidence |
| 1.2.3 (c) | Mainstreaming IWRM Plans into ISPs and to ensure well-coordinated and sustainable water resources protection, management and development | 1 | 14 | 5 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 1.4.1 (a) | Facilitation of urban environment planning in selected provincial capitals to protect biodiversity rich ecosystems that serve urban areas. | 1 | 14 | 9 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 1.5.4 (b) | Establish at least three botanical gardens in at least three provinces | 1 | 14 | 14 | Planning stage or early implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 3.1.2 | Policy and Program formulation and strengthening of ABS as stipulated under the Nagoya Protocol with participation from wide range of stakeholders | 3 | 16 | 21 | Actively under implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 5.1.1 (c) | Piloting of PES areas in at least 3 sites to support hydropower operations. | 5 | 14 | 27 | Planning stage or early implementation | Unknown | No significance change | Based on limited evidence |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target * | Progress in implementing | Effectiveness of implementation | Progress in achieving sub-element of the Aichi | Level of confidence |
|----------------------------------|---|----------------|-----|----------------|--|--|--|---------------------------|
| Strategic Goal E: Implementation | | | | | | | | |
| 1.5.1 (a) | Participatory preparation and improvement of the PA management plans and protection forest management and corridor management plans | 1 | 19 | 11 | Planning stage or early implementation | Measure taken has been effective | On track to achieve target | Based on partial evidence |
| 3.1.1 | Formulation of guidelines under the Intellectual property rights law to support protection of traditional knowledge in biodiversity conservation and use. | 3 | 18 | 20 | Planning stage or early implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on limited evidence |
| 3.1.3 (a) | Establish knowledge base of Traditional Knowledge on biodiversity conservation and sustainable use | 3 | 18 | 22 | Actively under implementation | Measure taken has been effective | On track to achieve target | Based on limited evidence |
| 3.1.3 (b) | Developed an updated national research and development program to support biodiversity users in agriculture, medicine, tourism, among others | 3 | 19 | 22 | Actively under implementation | Measure taken has been effective | Unknown | Based on limited evidence |
| 3.1.4 (c) | Participate in bilateral and multilateral cooperation on BD to help address high priority of NBSAP R&D needs. | 3 | 17 | 23 | Actively under implementation | Measure taken has been partially effective | No significance change | Based on partial evidence |
| 3.1.4 (a) | Collaboration with other conventions to capture, analyse, set up data bases and exchange experiences with other countries | 3 | 19 | 23 | Planning stage or early implementation | Measure taken has been partially effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 3.1.4 (b) | Promotion of trans-boundary cooperation for biodiversity monitoring and action | 3 | 19 | 23 | Actively under implementation | Measure taken has been effective | Progress towards target but at insufficient rate | Based on partial evidence |
| 3.1.4 (d) | A centralized and integrated database system (IT) for efficient and effective NRE data and information management and sharing is developed. | 3 | 19 | 23 | Not yet started | Unknown | No significance change | Based on partial evidence |
| 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 | 3 | 19 | 23 | Planning stage or early implementation | Unknown | Unknown | Based on limited evidence |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target * | Progress in implementing | Effectiveness of implementation | Progress in achieving sub-element of the Aichi | Level of confidence |
|-----------|---|----------------|-----|----------------|-------------------------------|----------------------------------|--|---------------------|
| | SDGs | | | | | | | |
| 5.1.1 (a) | Identify funding sources and permanent fund to ensure the sufficient and consistent funding | 5 | 20 | 27 | Actively under implementation | Measure taken has been effective | N/A | N/A |
| 5.1.3 (a) | Assessment of internal sources of financing implementation of NBSAP including status of various funds created by law. | 5 | 20 | 29 | Not yet started | Unknown | N/A | N/A |
| 5.1.3 (b) | Capacity development for resource mobilization. | 5 | 20 | 29 | Not yet started | Unknown | N/A | N/A |

SECTION 4: IMPLEMENTING 2020 AICHI BIODIVERSITY TARGETS

The Convention on Biological Diversity (CBD) developed the Strategic Plan for Biodiversity for the period from 2011 to 2020 to serve as a flexible framework for the establishment of national targets. The Strategic Plan is comprised of strategic goals and targets known as the Aichi Biodiversity Targets. The objective of the Strategic Plan is to ensure the equitable and efficient use of biodiversity resources. The CBD Parties decided that the Level of Progress Reported in 5th NRs should focus on implementation of the 2011-2020 Strategic Plan and the progress made towards achieving the Aichi Biodiversity Targets.

4.1 An Assessment of the Progress towards meeting the AICHI Targets

The following is an assessment of the progress of Lao PDR in the implementation of each of the Aichi Biodiversity Targets. The assessment includes several sections:

- A summary statement of the progress report in Lao PDR 5th National Report.
- An overview ranking of the progress made for the 6th National Report as well as a statement if the assessment is based on evidence. The ranking includes:
 - On track to exceed target
 - On track to achieve target
 - Progress towards target but at an insufficient rate
 - No significant change
 - Moving away from target
- A general assessment of the progress towards the target (including objective data when available)
- A list of the activities that have occurred in Lao PDR since the 5th National report in 2015

The progress of Lao PDR in meeting the 20 International Aichi Biodiversity Targets has been mixed. Of the 19 Targets that are relevant to the country Six are considered to be “On Track to Meet the Target, Five have made “Progress towards target but at an insufficient rate”, Six have “No significant change” and 2 are potentially getting worse or “Moving away from target”.

Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society



TARGET 1 By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Level of Progress Reported in 5th NR– Improving but more efforts to be made

Assessment of Progress for 6th National Report

| | |
|---|------------------------------|
| Progress towards target but at insufficient rate | Based on partial evidence |
|---|------------------------------|

General Assessment of Progress: There is neither official data on Biodiversity Awareness within neither Lao PDR nor any program to systematically collect data on awareness of biodiversity issues across all sector of the Lao PDR population. This is the case with most middle and lower-income countries as indicators for this critical target have historically relied on public-opinion surveys that are time-consuming, geographically restricted, and expensive. However, a recent study (Cooper et al 2019) developed an alternative approach based on

tracking the use of biodiversity-related keywords in 31 different languages in online newspapers, social media, and internet searches to monitor Aichi Target 1 in real-time, at a global scale. Based on the results of this study within Lao PDR as with neighbouring countries in the Mekong Delta Biodiversity Awareness on a global comparison is relatively low. Using the metrics in this report Lao PDR ranked 140th of the 193 countries with data. Within the Mekong delta Cambodia was 97th Myanmar 130th, Vietnam 126th and Thailand 129th.

Update on Activities since 2015 Report

- In terms of awareness raising the major activity to this has been the National Project *Contributing by Constituency Building of Public Administration on Environment, Biodiversity and Wildlife Issues sub-project* (funded by the EPF). This project includes training of Key Civil Servants on the dissemination of biodiversity related information to the public. At this stage under this program training has been provided to over 114 staff (including 22 female staff). This has resulted in 4 articles on sustainable PA, Wildlife, and Fisheries published in Administrator Magazine, news disseminated on radio system 3 times, and TV 4 times. Lao National TV Program is also broadcasting an environmental program.
- The University of Lao PDR has developed a number of programs focused on improving the knowledge base and capacity of government and civil staff involved in natural resource management. The main project is the Human Resources Development for Protected Area and Wildlife Management Program implementing by the Faculty of Forest Science (FFS), NUoL.
 - 3 Short term training course and manual have been developed (PA Management, Wildlife Management, and Livelihood).
 - 576 (164 females) people have been trained in the program. PhD, MSc, BSc total 7 Students received scholarship and studying in Thailand, Lao PDR.
- An Undergraduate Curriculum (Forest and Wildlife Protection Major) has been developed and officially approved by the Ministry of Education and Sport (MOES), and currently available for student enrollment at the university.
- Training has also been provided in applying METT to Protected Area Staff. To date around 23,000 ha of Phou Chomvoy Protected Area in Bolikhamxay province and 8,000 ha of Phou Khao Khouay NPA have been assessed using this tool.
- Furthermore, the Faculty of Economic and Business, NUoL has developed a program for human resources development in environmental & natural resources economics relevant to PA and wildlife This program has developed ⁵⁶:
 - 11 topics in environment and natural resources economics are presented in the national & international conferences.
 - Four articles related to the environmental and natural resources economic have been developed and submitted to the international journal for publication.
 - Status assessment of wildlife and threaten measuring of 26,600 ha of Phou Chomvoy and Phou Khao Khouay PAs was conducted.
 - Forest loss rate assessment is in planning stage.
 - The Faculty of Natural Sciences, NUoL is also looking at Capacity Enhancement of Lao PDR's Natural Science Related to Environmental

⁵⁶ https://laoepf.org.la/wp-content/uploads/formidable/47/LENS2_FEB-NUOL-Annual-Report-2017.pdf

Protection and have developed a number of new curricular for Science Degrees⁵⁷, Including a:

- A Master program on Chemistry developed and approved by the Ministry of Education and Sport (MOES) in 2017 and opened in 2018, in total 11 students studying this program.
- More than 9 text books (Bio-Technology, Environment Chemistry, Soil pollution from chemical) are under review and will be published in 2018-2019;
- 30 posters related to biology, chemistry and physics is ongoing prepared and to be exhibited in 2019. 31 faculty members,
- In terms of informal education programs, 16 provincial staff and villagers have undergone informal training for the Phou Chomvoy Protected Areas in Bolikhamxay province with the training covering a number of topics including: diversity of animals and rare animals, plants and fungi; local geology, characteristics of water and soil qualities in protected area; the solar light intensity to be used as renewable energy,. This program was delivered in learning by doing approach.



Target 2

By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.

Level of Progress Reported in 5th NR– Improving but more efforts to be made
Assessment of Progress for 6th National Report

| | |
|---|------------------------------|
| Progress towards target but at insufficient rate | Based on partial evidence |
|---|------------------------------|

General Assessment of Progress; The 5th National Report indicated that Improvements have been made to the legal framework to include biodiversity values into sector strategies, policy, and legislation which have occurred mainly at the national level. However, since that time, there is no consistent, sector wide program of integration of biodiversity neither issues into planning and development nor is biodiversity incorporated into national accounting. There is no nationwide consistent program that considers the socioeconomic contribution of biodiversity to the reduction of poverty. However, both the TABI and LENSII projects have subprograms that actively integrate biodiversity protection with socio economic development and poverty reduction (see the TABI and LENS II case studies).

Update on Activities since 2015 Report

- TABI has contributed to the development of the National Biodiversity Strategic Action Plan, The National Agrobiodiversity Action Plan of MAF and 2 Provincial Biodiversity Strategic Action Plans in Luang Prabang and Xiengkhouang provinces. Moreover, a provincial based Biodiversity Strategy and action Pan PBSAP for Attapeu province has also been developed.
- As part of the Core Environment Programme and Biodiversity Conservation Corridors Initiative (CEP-BCI). Provincial regulations on biodiversity conservation corridors in Attapeu, Champasak, and Sekong have been developed and adjusted for the community level implementation.

⁵⁷ https://laoepf.org.la/wp-content/uploads/formidable/47/LENS2_FNS-NOUL-Annual-Report-2017.pdf

For Forestry Management

- The joint Lao PDR and Japan International Cooperation Agency (JICA) Lao PDR Sustainable Forest Management and REDD+ Support Project established in 2015. The objective of the project was to strengthen the capacity for sustainable forest management through incorporation of REDD+ into the sector strategy and improvement of forest resource information.
- DOF undertook a review of the forest strategy to the year 2020. The review report was presented and discussed between concerned stakeholders across Lao PDR.
- Forest performance indicators 2014 were developed (FSCAP, 2014). However, since then time there has been no progress on updating forestry strategy. DOF has advised that they plan to update the Forest strategy to the year 2030 in 2019.
- MAF has developed the National Forest Information System. This includes the systematic assessment of quantitative data on three categories forest cover change and carbon stock change every five years (2000, 2005, 2010, 2015.) The forest cover change program is based on the national forest inventory system and the methodology of the Forest Carbon Partnership Facility (FPCF).

Wetland Management

- A recent report produced jointly by FAO, MONROE and GEF⁵⁸ recommended the establishment of a National Wetlands Management Committee and TWG under MONRE's leadership. This committee should provide overall leadership and guidance on the wise use of all wetlands in the country, develop inter-ministerial consensus on their importance and on the main policy directions required and should develop its own Strategic Plan of Action.
- In terms of action on wetlands in Lao PDR several guidelines, posters, and booklets for fishery law enforcement and implementation have been developed. After the government order the PMO No5 on the management and inspection of prohibited wild fauna and flora was declared the National Wildlife and Aquatic Crime Response Action Plan of Lao PDR has been issued. But detail guidelines specific for aquatic resources are still in an ongoing phase of development.
- In addition, a number of cooperative activities are under implementation aimed at preserving the Mekong biodiversity These include
 - The Lao-Thai Fisheries Project, where the project is cooperation between MAF and WWF-Lao PDR and neighboring partners⁵⁹.
 - MAF is also cooperating with Southeast Asian Fisheries Development Center (SEAFDEC)⁶⁰, Network of Aquaculture Centers in Asia-Pacific (NACA) on fishery program.
 - Likewise, Lao PDR participates in The MRC on transboundary dialogue.

Land use Planning

- The New Land Management Resolution, which was endorsed by the central party

⁵⁸ *Institutional Mechanisms for Wetlands Governance in the Lao PDR in the Context of the Ramsar Convention*
<http://www.fao.org/3/i8803EN/i8803en.pdf>

⁵⁹ <http://www.wwf.org.la/projects/lao-thai-fisheries/>

⁶⁰ <http://www.seafdec.org/fisheries-country-profile-lao-pdr/>

committee in the year 2017 (LPRP, 2017).

- In general Land management planning at the Provincial and District level is an ongoing commitment. Many capacity building activities have been conducted at both the Provincial and District level:
 - PONRE, DONRE staff have been trained on Land Use Zoning, Land Use Planning, various GIS software and applications.
 - A Land Use Management Manual has been developed and is applied for the actual field activities of several land use mapping projects.
 - A system for land management and monitoring at the provincial level is in the process of development.
 - Related to the ISP, GoL also developed the ATLAS information platform on social-economic development, environmental, agriculture sector



Target 3

By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.

Level of Progress Reported in 5th NR– Improving but more efforts to be made
Assessment of Progress for 6th National Report

No significant change

Based on partial
evidence

General Assessment of Progress: In terms of major industries and development the relevant environmental regulations in Lao PDR are the Environmental Protection Law (EPL) of 1999 as amended in 2013 and the Lao Initial Environmental Examination (IEE) Instruction of 2013. In general hydropower and mining companies have the highest level of compliance and provide funds with these regulations. But most sectors do not closely adhere to the environmental regulation and do not follow the ESMMP/EMP framework. Lao PDR is yet to develop a system of positive incentives for the conservation and sustainable use of biodiversity.

Update on Activities since 2015 Report

- MONRE has updated new EIA decree, which was endorsed by GoL in January 2019. The new EIA decree has resulted in improvements to the ESIA process and has transferred responsibility to the provincial level for improved and streamlined implementation
- Provincial PONRE are actively implementing the new ESIA using the IEE guidelines. PONRE staffs have been trained on ESIA general technical guidelines (writing, reviewing and monitoring).
- MONRE have updated of existing guidelines and/or development of new specific guidelines on ESIA preparation and mitigation measures for (a) mining exploration and exploitation, (b) construction and operation of hydropower projects, and (c) construction and operation of road projects.
- The NUoL, Faculty of Environment Science is also building capacity for technical knowledge of Environmental Impact Assessment (EIA) and has provided 5 Training

course manuals on (energy, mining, agriculture, industrial and infrastructure development) have been developed, particularly methodologies supporting EIA.

- In addition, the provincial level administrations are now responsible for IEE and each has established an IEE committee. PONREs have also undertaken roles on IEE including:
 - Provided the capacity for the PONRE and DONRE staffs,
 - Conducted the monitoring activities of the investment project in the province.
 - Carry out the assessment and collect the information of the investment project existing in their provinces
 - Verify the IEE certification, and
 - Developed the investment datasheet at the province, and entry the investment data and report to MONRE.



Target 4

By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.

Level of Progress Reported in 5th NR: improving but more action required
Assessment of Progress for 6th National Report

No significant change

Based on partial
evidence

General Assessment of Progress: A rising population and increased living standards have led to an increase in the demand and consumption of the ecological goods and services provided by natural resources within Lao PDR. Between 2010 and 2016 the Ecological Footprint of Consumption (EFC) for Lao PDR has risen sharply from 1.28⁶¹ to 1.9 ha/p (global hectares per person). Most of that rise has been a 53% increase in ha/p consumption of forest products and a 42% increase in ha/p of cropping. Before 2016 there were considerable concerns about the over extraction of timber resources. Though new activities by the government of Lao PDR have appeared to have reversed or at least reduced that trend which may affect this assessment in future analyses. During this time the biocapacity reserve or surplus⁶² has declined, though still remains positive. In 2010 the biocapacity excess was 0.3⁶³ ha/p by 2016 it had narrowed to 0.1 (see Figure 4.1). This means that current consumption of ecosystem goods and services by the existing population is considered to be still with the capacity of the ecosystems to produce them. In addition to this a global analysis of the proportion of Net primary consumption

⁶¹ 2019 Global Footprint Network. National Footprint and Biocapacity Accounts, 2019 Edition.

⁶² The difference between the biocapacity and Ecological Footprint of a region or country.

⁶³ Some of the increase in EFC was offset by increases in the biocapacity due to increases in the biocapacity of Forests and croplands

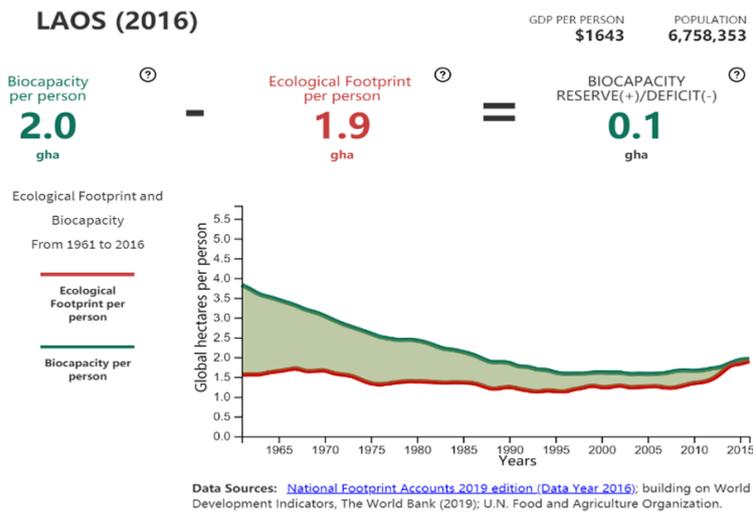


Figure 4.1 Lao PDR Trends in Ecological Footprint and Biocapacity: 1961 -2016

Some sectors however such as water resources are currently sustainable under existing extraction rates. The government of Lao PDR has identified the development of hydropower, as vital to the country’s economic growth and poverty alleviation. At the same time, the fast pace and large volume of hydropower development is changing the way water is used and is putting pressure on the environment and people’s livelihoods.

The total of annual water flow in Lao PDR is estimated at 270 billion cubic meters, equivalent to 35% of the average annual flow of the whole Mekong Basin. The annual national supply of renewable fresh water is 270 billion m³, or about 600,000 m³ per person, while current demand is only 259m³/person. There available water of 270 Billion cubic meters and 5.7 billion has been used



Figure 4.2 Baseline Water Stress in Lao PDR

and the remaining amount of 264.3 Billion cubic meters flows in the natural rivers. The Baseline water stress for Lao PDR is Low (Figure 4.2)⁶⁴. Baseline Water stress measures the ratio of total annual water withdrawal to average annual available blue water is a commonly used indicator also known as relative water demand.

Update on Activities since 2015 Report

Forestry Sector

- The joint Lao PDR and Japan International Cooperation Agency (JICA) Lao PDR Sustainable Forest Management and REDD+ Support Project was established in 2015 (currently JICA support in forestry sector is merged as a project as F-REDD) (MAF,

⁶⁴ [Base line water stress - generated by Open Development Lao PDR with <https://LaoPDR.opendevlopmentmekong.net/map-explorer/>]” by Open Development Lao PDR, licensed under CC-BY-SA.

MONRE, Kokusai Kogyo Co., 2015). The objective of the project was to strengthen the capacity for sustainable forest management through incorporation of REDD+ into the sector strategy and improvement of forest resource information.

- DOF undertook a review of the forest strategy to the year 2020. The review report was presented and discussed between concerned stakeholders across Lao PDR. Also, forest performance indicators 2014 were developed (FSCAP, 2014). However, since that time there has been no progress on updating forestry strategy. DOF has advised that they plan to update the Forest strategy to the year 2030 in 2019.
- In terms of production forest management, Forest Management plans for all 51 national production forest areas and all 112 compartments have been developed by DOF with support from the Sustainable Forestry for Rural Development (SUFORD) Scaling Up Project (MAF, 2017).
- For community forest management and certification, forest auditing process for two communities in Bolikhamxay and an additional area in Savannakhet province were conducted by the Province Rain Forest Alliance and DOF in 2018. In addition, Forest Stewardship Council (FSC) forest certificate and auditing progress are continuing to certify more 4 PFAs in Khammuane and Savannakhet province.
- FSC certification for two communities in Bolikhan District, Bolikhamxay Province for Rattan cane (rough form) were re-issued in December 2018 and valid until March 2022 for a total forest area of 10,949 ha⁶⁵.
- The Lao Forest Law Enforcement, Governance and Trade Process FLEGT VPA, is with support of the EU supporting DOFI and a number of Community Service Organizations to conduct a study on several topics related to the rights of local community in selling the timber products, including village use forestry.

Water Sector

- In 2017 The Ministry of Finance and the World Bank signed an agreement for financing support of \$25 million of additional funding for the Mekong Integrated Water Resources Management (MIWRM) Project. This project has three components. The first component, Regional Water Resources Management, aims to support the MRC in facilitating IWRM dialogue between the Lao PDR, Cambodia, Thailand, and Vietnam, The second component, National Water Resources Management, aims to Strengthen the institutional and technical capacity for Integrated Water Resources Management, the third component, River Basin and Aquatic Resources Management

Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use



Target 5

By 2020, the rate of loss of all-natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Level of Progress Reported in 5th NR– some improvement but very little real progress towards target.

Assessment of Progress for 6th National Report

⁶⁵ <https://info.fsc.org/details.php?id=a024000005sS1MAAU&type=certificate&return=certificate.php>

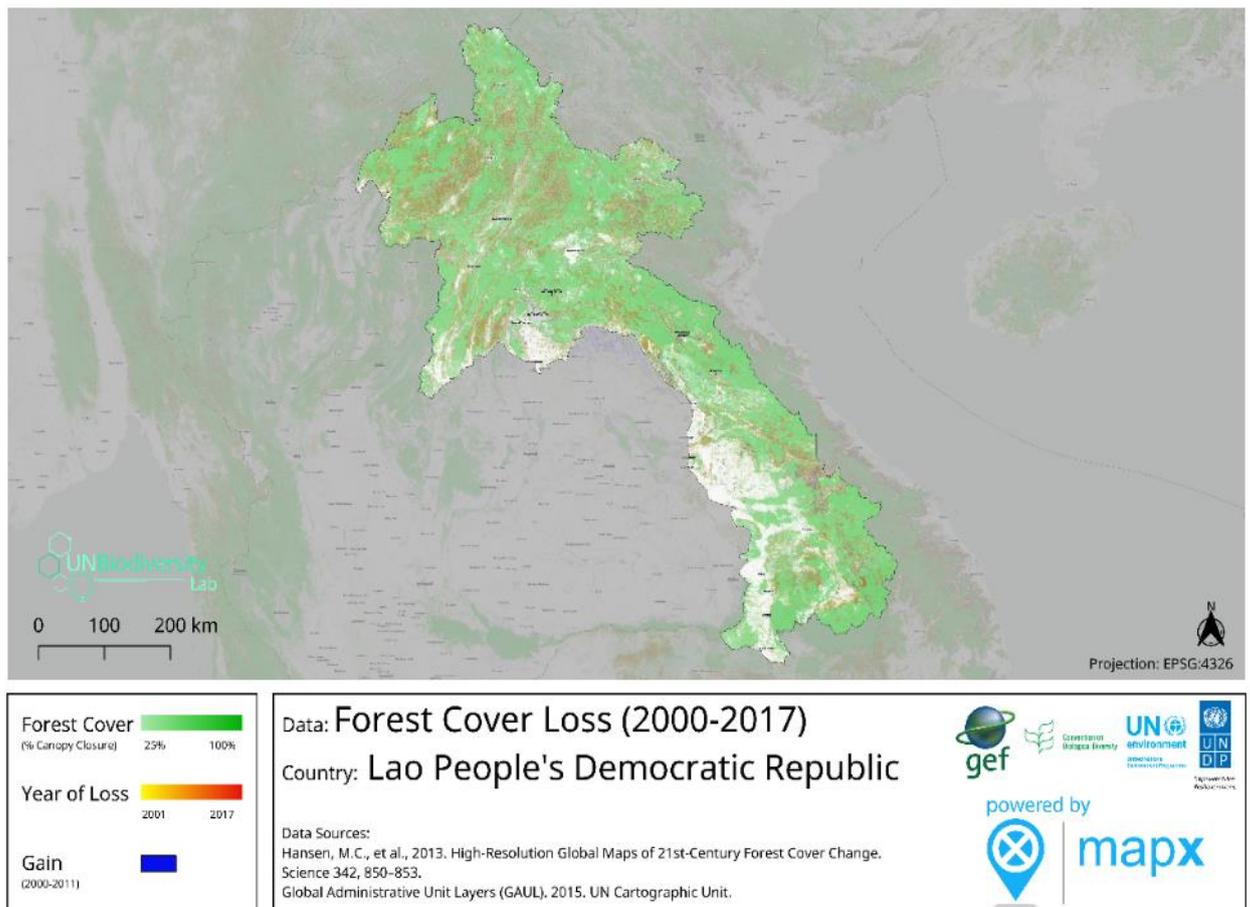
On track to meet Target

Based on partial evidence

General Assessment of Progress: In terms of broad forest cover Lao PDR is on track to meet and potentially exceed the target. There is considerable data relating to Forest cover and loss, however there is very limited data on aspects such as habitat degradation or other habitat types such as wetlands.

Recent analysis from the Lao PDR Forest Inventory and Planning Division (FIPD) estimated the 2005 forest cover was just over 61% and the 2015 forest cover was at around 58%. The rate of forest loss from 2005 to 2015 was at around 3.1% (approx. 735,000 ha), while during the same period, agricultural land expanded by approximately 2.1%. Using data from the FORMA⁶⁶ alerts the reported potential tree cover loss was 9500 ha or less than 0.1% of the existing forests cover. Figure 5.1 below shows the areas of forest or tree cover loss between 2000 and 2007. Looking at the distribution of primary forest in Figure 5.2 shows the area of Primary forest in 2001 (areas of mature dense canopy forest). From that we can see a proportion of that forest loss is likely to be re clearing of regrowth forest as part of traditional swidden agricultural practices carried out in many areas of Lao PDR.

Figure 5.1 Forest Cover Loss Lao PDR 2000-2017

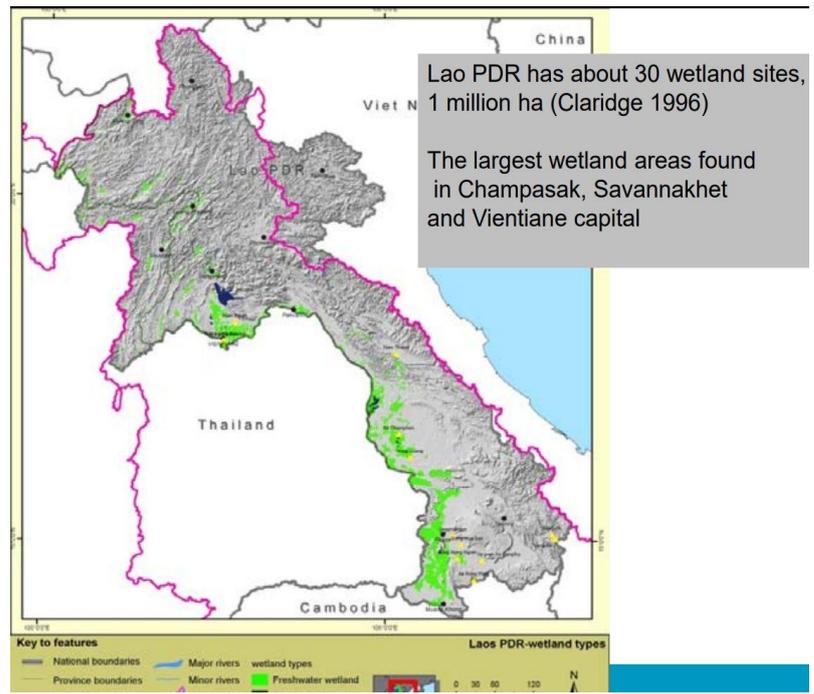


⁶⁶ World Resources Institute and Centre for Global Development. "FORMA Alerts." Accessed through Global Forest Watch on [30/4/2019]. www.globalforestwatch.org.

Figure 5.2 Primary Forest Cover Lao PDR 2001

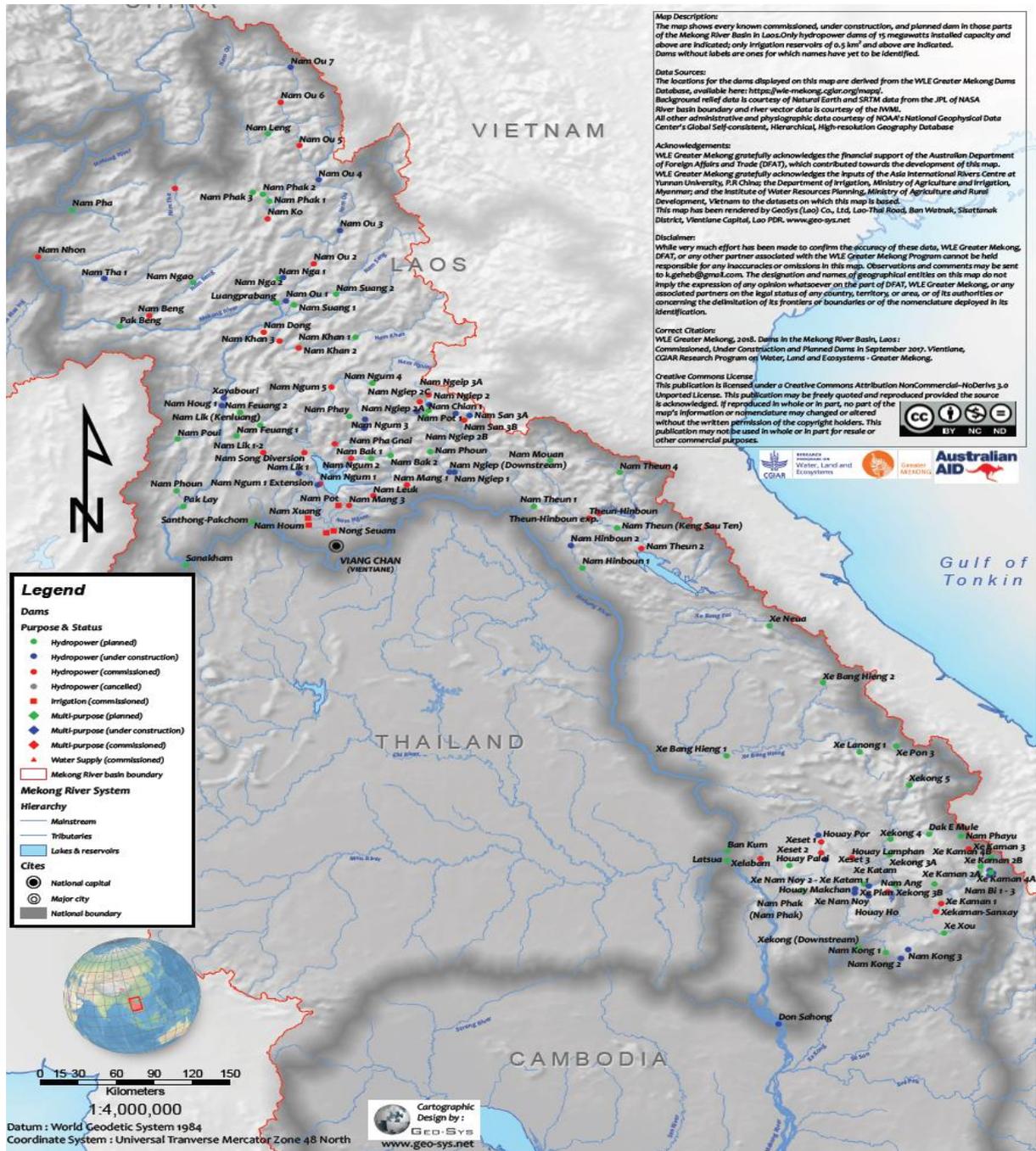


Wetlands in the Lao PDR, like many other countries, play an important role in water regulation, and combating droughts. Wetlands play a very important role in the lives of the Lao people. With a population of almost 6.9 million, the majorities of the people live in the wetland-rich Mekong basin and are dependent on wetlands for their daily subsistence and income generation. The country has about 30 significant wetland sites predominately in the major river valleys of the west and south west of the country (Figure 5.3), which cover an estimated 1 million hectares (Claridge, 1996). This figure does not include the small but significant wetlands within the mountainous areas of the North and East of the Country which are yet to be survey for wetlands. These wetland habitats support a remarkable level of biodiversity. More than 481 fish species have been identified in the Lao PDR, including 22 introduced species, and new species are regularly discovered. Among other aquatic animals, approximately 37 amphibians, 7 species of crab and 10 species of shrimps have been recorded, but these records cover only about 15% of the estimate total (Phonvisay, 2013). Recent Data on the trends in wetland extent and



condition are not available; however one of the major threats to riverine wetland integrity and extent is water resource development and particularly Hydropower dam construction. Within Lao PDR there are 57 proposed hydropower dams which will have significant impact on floodplain wetlands (Figure 5.4).

Figure 5.4 Large Dams in Lao PDR



Update on Activities since 2015 Report

- MAF has developed the National Forest Information System. This includes the systematic assessment of quantitative data on three categories forest cover change and carbon stock change every five years (2000, 2005, 2010, and 2015). MAF has also started planning for the 3rd national forest inventory which is expected to start in late 2019.

- In response to the increasing extraction and export of wood products from Lao PDR forests in May 2016, the Government of Lao PDR enacted a Prime Ministerial Order (PM15) which, along with other commitments, was aimed at controlling the country's high deforestation rates and promote Lao PDR's own domestic wood product industry by banning the export of all logs and sawnwood.
- In 2017 the GoL initiated the Forest Law Enforcement, Governance and Trade (FLEGT) Voluntary Partnership Agreement (VPA) negotiations with the EU including the multi-stakeholder process of defining and agreeing on Lao PDR's Timber Legality Definition (TLD) and development of a Timber Legality Assurance System (TLAS).



Target 6

By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits

Level of progress from 5th National Report.

Little progress and getting worse

Assessment of Progress for 6th National Report

No change

Based on partial
evidence

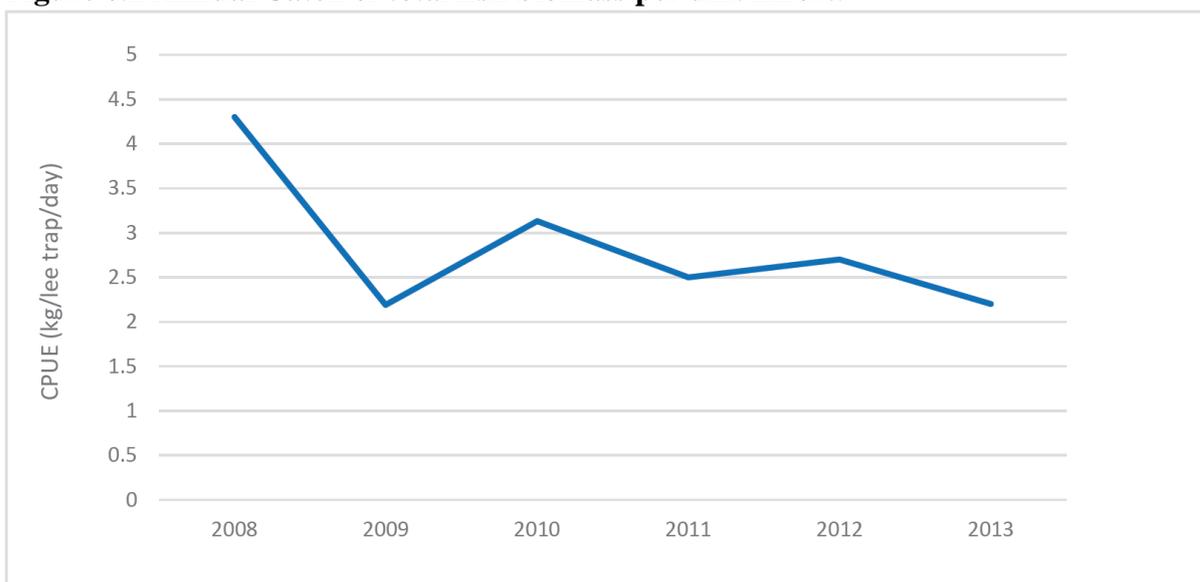
General Assessment of Progress; It is difficult to assess the progress of Lao PDR for this target as there are no reliable monitoring programs targeted at the individual species population level. Neither is there a national program to look at the monitoring of sustainable production across the entire Lao PDR Fishery. The country's estimated average fish consumption of inland fish is 24.5 kg/capita/year, while other aquatic animals account for about 4.1 kg/capita/year, and marine products around 0.4 kg/capita/ year, making a total of 29.0 kg/capita/year of fish and aquatic products consumed (Hortle, 2007). The total area of water resources for capture fisheries in Lao PDR is more than 1.2 million ha. The country's estimated average consumption of inland fish is approximately 167,922 MT per year while consumption of other aquatic species is estimated at 40,581 MT per year.

There has been some limited monitoring by the Mekong River Commission⁶⁷ which reports a decline in overall catch per unit effort (see Figure 6.1) which could indicate a decline in overall fish stocks. However, the time period is very short and problems with changes in monitoring methods during the study are problematical. Another research study, aimed at using local indigenous knowledge of fish mean and mode last capture dates, of eight rare or culturally significant fish species (Gray et al 2017⁶⁸) indicated that larger species, and those with higher Red List threat status, were caught less recently than smaller species of less conservation concern. Of particular concern the Critically Endangered *Pangasius sanitwongsei* had not been captured by any fishermen interviewed over the last 14 months and with a mean last capture date of more than two years ago.

⁶⁷ <http://www.mrcmekong.org/assets/Publications/Fishery-Monitoring-in-Lao-PDR-final.pdf>

⁶⁸ Gray TNE, Phommachak A, Vannachomchan K, Guegan F (2017) Using local ecological knowledge to monitor threatened Mekong megafauna in Lao PDR. PLoS ONE 12(8): e0183247. <https://doi.org/10.1371/journal.pone.0183247>

Figure 6.1 Annual Catch of total fish biomass per unit Effort.



Update on Activities since 2015 Report

- The Department of Livestock and Fisheries reports that a total 885 of fish conservation zones have been established (DoLF, 2018). This includes 252 fish conservation zones developed by the local community in Houaphan, Xiengkhouang, Luang Prabang and Phongsaly provinces with support provided by TABI project
- Nationally, several guidelines, posters, and booklets for fishery law enforcement and implementation have been developed
- Several cooperative activities are under implementation aimed at preserving the Mekong biodiversity These include
 - The Lao-Thai Fisheries Project, where the project is cooperation between MAF and WWF-Lao PDR and neighbouring partners.
 - MAF is also cooperating with Southeast Asian Fisheries Development Centre (SEAFDEC), Network of Aquaculture Centres in Asia-Pacific (NACA) on fishery program.



Target 7

By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

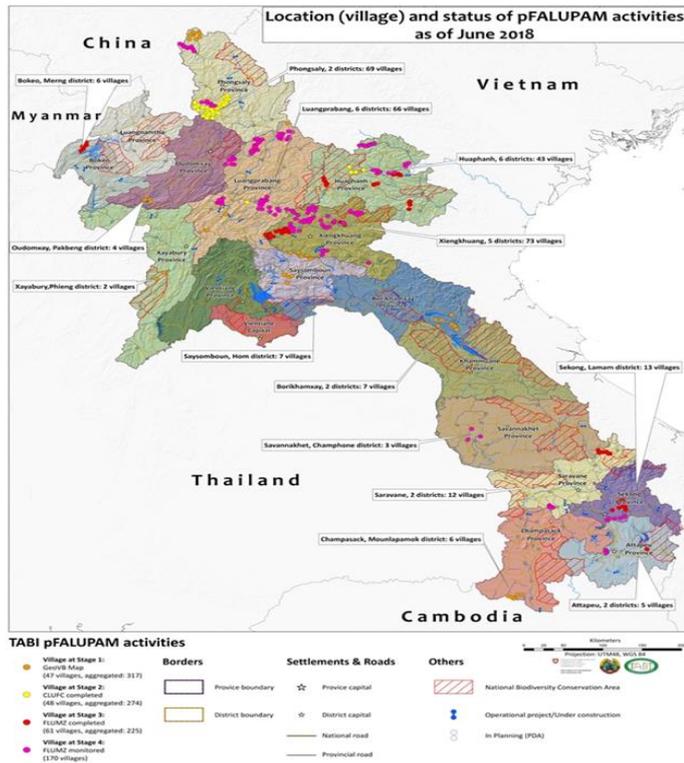
Level of Progress Reported in 5th NR: improving but more action required

On track to achieve target

Based on partial evidence

General Assessment of Progress; Significant advancement has been made in both Agency and community-based Forest Management. However, these are recent developments and more time is required to see if the changes have a lasting effect.

Figure 7.1 the TABI Project Areas



In terms of agriculture there are a few excellent pilot programs focused on sustainable agriculture and agrobiodiversity. Within Lao PDR there are several programs and significant activity directed towards supporting local communities to implement sustainable agriculture. These include TABI The Agro-Biodiversity Initiative has carried out integrated land use planning in 315 villages in 12 provinces covering more than 1 million ha of agriculture and forest land (see the TABI case study and Figure 7.1), The Northern Upland Development Project (NUDP), and another project related to food security and nutrition supported by IFAD and EU. However,

these have limited spatial coverage. As such there is little data to determine if sustainability and integration of biodiversity is common across Lao PDR.

Update on Activities since 2015 Report

- MAF has completed the assessment of rice field and quality of 175,000 hectares of rice field land in two target provinces, and 32,000 hectares of rice fields of 11,500 households have been registered and planned to apply machineries and modernize technique for increasing the productions (MAF, 2018).
- MAF has also undertaken:
 - The National land quality assessment for crops including rice has also been conducted for 7 big plateaus and 2 medium plateaus,
 - MAF has completed mobilizing of funding for the construction of 32 organic fertilizer factories in the target rice production provinces.
 - 300 soil doctor volunteers have been trained in the rice production focused zone since 2014
 - MAF has strictly inspected the use of chemicals and pesticide especially in the banana plantations.
 - Expanded the green agriculture area into 50,000 hectares that can produce crops and export to other countries.
- National policies have been developed to support farmers move towards more sustainable for example:
 - The sustainable clean and green agricultural directives are set.
 - Encouragement to form agricultural cooperatives has allowed them to have more power in agricultural commodity production as well as facilitated the use of some mechanization reducing costs, increasing efficiency and reducing the loss from harvesting.
- The TABI project has implemented a process to integrate forest and agriculture land use planning, allocation and management. It has carried this out in 315

villages in 12 provinces covering more than 1 million ha of agriculture and forestland. TABI has collected detailed evidence of forest regeneration, reduction in shifting cultivation and strengthened local capacity to actively manage their land. The process is emerging as an effective mechanism for supporting better managed landscapes with multiple functions. It provides an opportunity for local people to demarcate, protect their resource claims and for increased clarity of various use zones.

- The TABI project in agricultural support services: has trained and aided more than 40,000 Households focused on 24 agrobiodiversity types of activities.
- TABI has also supported a study to identify and characterize the different varieties of Khao Kai Noi (KKN) rice – a specialty indigenous rice. This has led to the development of clean seed production for Khao Kai Noi.
- Additionally, TABI has also provided support for sustainable bamboo shoot and orange cultivation.



Target 8

By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Level of Progress Reported in 5th NR: improving but very little progress has been made
Assessment of Progress for 6th National Report

No change

Based on partial evidence

General Assessment of Progress; The Water Quality Laboratory of the Ministry of Agriculture and Forestry reports that over the past 15 years of monitoring, water quality in Lao PDR has generally been good. However, with the pressure of rapid demographic growth, economic development and urbanization, water quality is increasingly likely to deteriorate. Water pollution is rapidly increasing in both urban and rural areas. Most urban areas have no wastewater treatment facilities, so inadequate sewerage facilities have accelerated the discharge of domestic liquid wastes to water bodies. Due to haphazard urbanization, discharge of domestic sewage, faecal sludge, industrial effluents and dumping of solid waste, to water bodies and the intensive use of chemical fertilizer, pesticides in agricultural practices have severely affected the rivers deteriorating the local water quality.

The Mekong Water Quality network (WQMN) includes water quality monitoring for 48 permanent monitoring stations; of which 11 are in Lao PDR, 8 are in Thailand, 19 are in Cambodia and 10 stations are in Viet Nam (See Figure 8.1 below). Using the data from these monitoring sites the Government of Lao PDR through the Natural Resources and Environment Institute of MoNRE in conjunction with WQMN has produced an annual Water Quality Index for Aquatic life WQIal⁶⁹.

The Water Quality Index for aquatic life (WQIal) is comprised of:

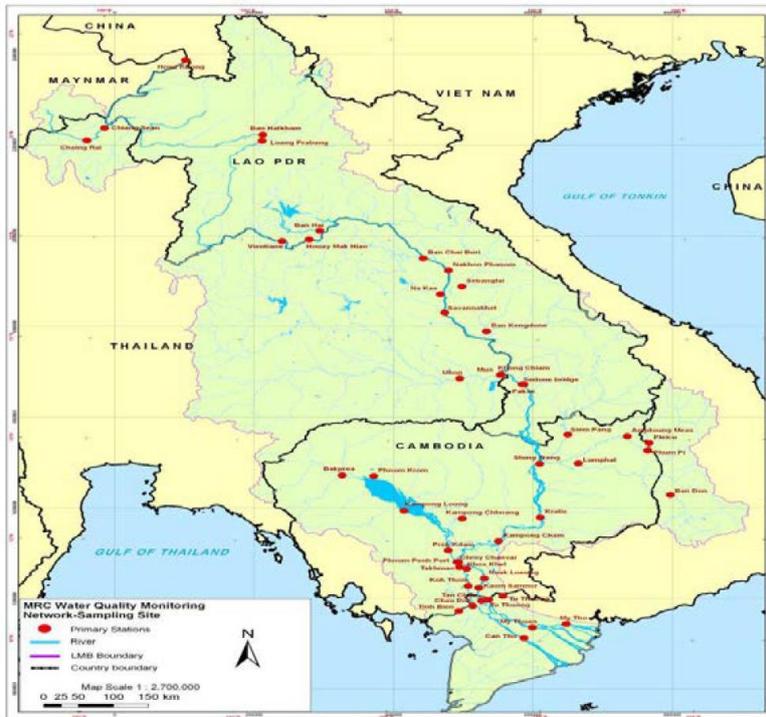
| | | |
|--|-------------------------|-----|
| DO, pH, NH ₃ , Conductivity | Meets guideline | = 1 |
| | Does not meet guideline | = 0 |
| NO ₃₋₂ , total-P | Meets guideline | = 1 |
| | Does not meet guideline | = 0 |

⁶⁹ Mekong River Commission Lao National Mekong Committee Annual Report on Water Quality Data Assessment 2016

This is calculated using the following algorithm

$$WQI = \frac{\sum(p_1 + p_2 + \dots + p_n)}{M} \times 10$$

Where: p is the number of points per sample day
n is the samples dates in the year
M is the maximum possible number of points for measured parameters in the year



And water quality is then rated from **A**-high quality to **E**-Very poor quality. From 2010-2016 most monitoring stations were rated as High or Good quality with the exception of Houay MaKHiao where for most years there has been poor to moderate quality (Figure 8.2). In 2016 all sites were rated from Good to High.

Figure 8.1 Water Quality Monitoring Network in Lao PDR

| No | Code | Station Name | Class | | | | | | |
|----|---------|---------------|-------|------|------|------|------|------|------|
| | | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
| 1 | H010500 | Houakhong | A | A | A | B | B | B | B |
| 2 | H011200 | LuangPrabang | A | A | A | B | B | B | A |
| 3 | H011901 | Vientiane | A | A | A | B | B | A | A |
| 4 | H013401 | Savannakhet | A | A | A | B | B | B | A |
| 5 | H013900 | Pakse | A | A | A | B | B | B | A |
| 6 | H100101 | Ban Hatkham | A | A | A | A | B | B | A |
| 7 | H230103 | Ban Hai | A | A | A | B | B | A | A |
| 8 | H320101 | Sebang Fai | A | A | A | B | B | B | A |
| 9 | H350101 | Ban Kengdone | A | A | A | B | B | B | A |
| 10 | H390105 | Sedone Bridge | A | B | A | B | B | B | A |
| 11 | H910108 | HouayMakHiao | D | D | D | C | C | C | B |

| Class |
|----------------------|
| A- High Quality |
| B- Good Quality |
| C- Moderate Quality |
| D- Poor Quality |
| E- Very Poor Quality |

Figure 8.2 Aquatic Life Water Quality Ratings for Lao PDR Monitoring Sites

The generation of solid waste in urban areas in Lao PDR is also the rise, and already degrading the quality of surface and groundwater. Expanding urban populations, poor collection, and largely inadequate disposal facilities are compounding the level of pollution.

Update on Activities since 2015 Report

- The GMS Core Environment Program of ADB worked with the Ministry of Natural Resources and Environment's (MoNRE) Pollution Control Department (PCD) to develop the National Pollution Control Strategy and Action Plan 2018-2025, with Vision to 2030. The strategy and action plan carries a wide range of programs from law and policy development to specific programs to limit point source pollution⁷⁰.
- MAF has developed an appropriate policy and management system aimed at reducing and controlling pesticide use and importation in Lao PDR. This Pesticide Management Decree was endorsed by the Government of Lao PDR in 2017. Through the implementation of this policy, MAF has strictly inspected the use of chemicals and pesticides, especially in banana plantations.
- There are also a large number of sub-projects are being implemented by a number of local provincial organizations in northern provinces of Bokeo, Phonsaly, Laungnamtha, Oudomxay, Xayaboury and central part is Savanakheth province . These projects are targeted at providing support for capacity building of district agricultural staff on the:
 - impacts of chemical use on the environment and production including grass herbicides,
 - Safe pesticide and herbicide use.
 - training in conducting sample and data collection and analysis;
 - developing mitigation options with the local villagers for reducing the impacts of chemical impacts on health, terrestrial ecosystem and water resources;
 - awareness raising on the dangerous of chemical use also conducted;
 - carried out social and environmental assessment to assess the perspective of the local villagers on the problem of chemical, pesticide, and herbicide use.



Target 9

By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment

Level of Progress Reported in 5th NR: improving but more action required

Assessment of Progress for 6th National Report

Not likely to meet
Target

Based on partial
evidence

General Assessment of Progress: There appears not to be a nationally, or Province based Invasive Alien Species Eradication programs. There is not enough data to effectively assess progress on this Target. However, it is a reasonable estimate that based on the limited activities aimed at invasive alien species that this Target is not likely to be met. A search of the global invasive species database⁷¹ indicates that at least 58 species are serious threats to

⁷⁰ [http://www.gms-eoc.org/uploads/resources/922/attachment/Lao PDR-Pollution-Strategy-Plan-2018-2025-draft.pdf](http://www.gms-eoc.org/uploads/resources/922/attachment/Lao%20PDR-Pollution-Strategy-Plan-2018-2025-draft.pdf)

⁷¹

<http://issg.org/database/species/search.asp?st=sss&sn=&rn=Lao%20People%60s%20Democratic%20Republic&ri=19417&hci=-1&ei=-1&fr=1&sts=&lang=EN>

biodiversity and agriculture in Lao PDR.

- To establish effective enforcement of the Biotechnology Safety Law (2014) the Ministry of Science and Technology have developed and established the Molecular Laboratory-GMO Detection, the RT-PCR for GMOs detection was developed. Several field survey and sample collection and analyses were conducted.
- The MoST has produced Books, Posters, Brochures and Newsletters on invasive species.



Target 10

By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning

NOT Relevant Target for Lao PDR

Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity



Target 11

By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Assessment of Progress for 6th National Report

For Total Coverage

On track to meet Target

For Representation

Based on evidence

Progress towards target

but at an insufficient

rate

General Assessment of Progress; Overall the protected area coverage is likely to reach the Target as just under 17% of the Country is currently covered by National Protected Areas. Figure 11.1 shows the spatial distribution of those Protected Areas within Lao PDR and the total area of land conserved and the percentage of the land area of the country within Protected Areas.

However, there are problems with the spatial distribution and ecological representation of this PA coverage. There is a bias in the PA distribution to more mountainous and remote areas resulting in very poor representation of a few Ecoregions. For example, the Northern and Southern Annamites Rainforests have 32% and 24% coverage of PAs whilst the Luang Prabang Rainforests Ecoregion has < 9% of that Ecoregion in Protected areas⁷². Figure 11.2 shows the distribution of protection coverage for each of the Ecoregions in Lao PDR.

⁷² www.protectedplanet.net

The Protected Area network also does not provide adequate protection for all the Key Biodiversity Areas within Lao PDR. Approximately just over 40% of the areas of KBAs are currently within PAs. However, less than 10% of KBAs are fully protected and just over 50% have partial coverage. Importantly, 40% of the individual KBAs have no protection in protected areas (see Figure 11.4).

Another component of the Target is that the PA network should be well connected. If the Protected Areas are considered in isolation to the habitats within their surrounding landscapes, then other than the Northern and Southern Annamites Rainforests most of the PAs within the country are relatively isolated from each other. Figure 11.3⁷³ Shows an assessment of the percentage of land within Protected Areas adjusted to accommodate the percentage of each ecoregion that is within Protected Areas that are well connected. However, this assumes that the surrounding lands are neither protected and do not provide ecological corridors. However, if connectivity is considered on a landscape scale, irrespective of tenure, then a significant proportion of Lao PDR Protected areas are embedded in a landscape mosaic of secondary forest of varying levels of intensity of use and age since regeneration. The key to providing connectivity in Lao PDR depends on the management approaches to the landscape mosaic.

Finally, as Lao PDR has not undertaken any assessment of Management Effectiveness of the protected area network such as a METT assessment it is not possible to provide a national wide assessment of the management of the Protected Area network.

⁷³ <http://dopa.jrc.ec.europa.eu/en/mapsanddatasets>

Figure 11.1 Protected Areas in Lao PDR

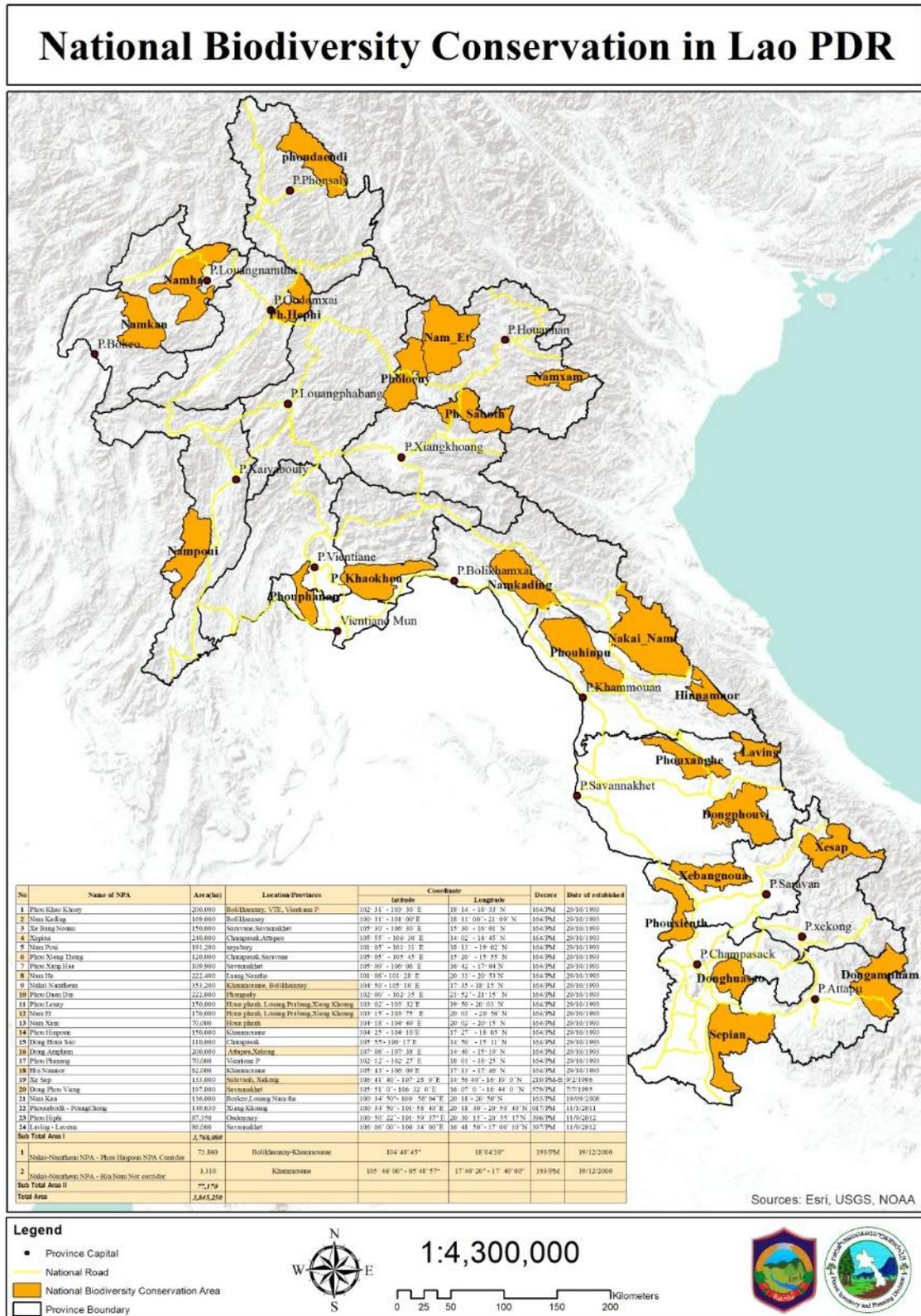
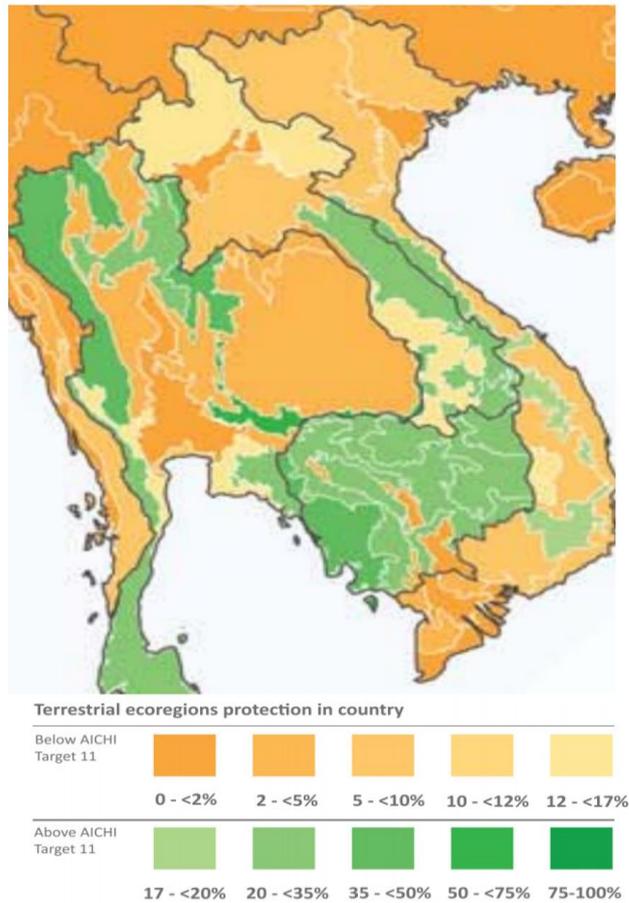


Figure 11.2 Map of Ecoregion Coverage In Lao



Battistella, L., Mandrici, A., Delli, G., Bendito Garcia, E., Dubois, G. (2019) Map of protection levels for the terrestrial ecoregions in country of the world as of January 2019. Downloadable from <http://dopa.jrc.ec.europa.eu/> © European Union, 2019. Reproduction is authorised provided the source is acknowledged.

Figure 11. 3 Percentage of Ecoregions Within Lao PDR Within Connected Protected Areas

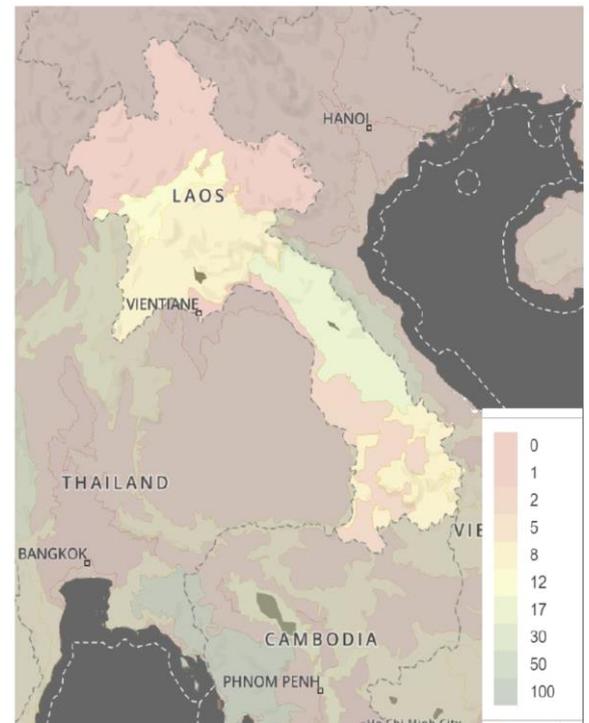
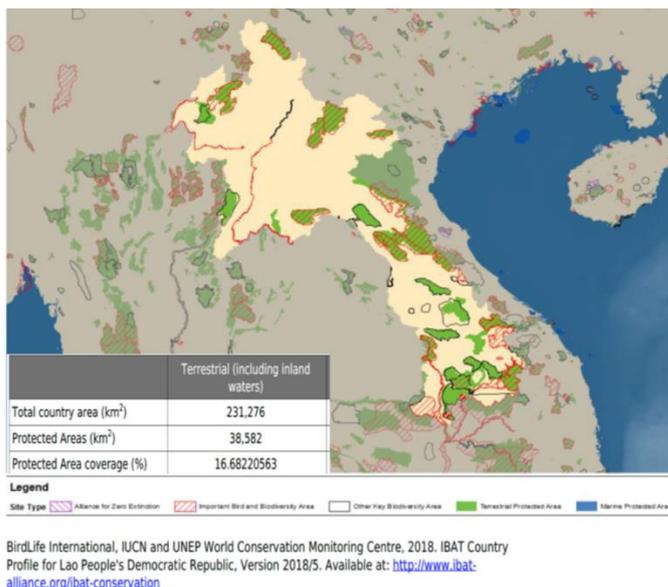


Figure 11.4 Protected Areas Coverage of KBAs



Update on Activities since 2015 Report

Improving Reservation Status and Connectivity

- As part of the SAFE project UNDP is working with the Gol to improve the conservation of Dry Dipterocarp forest in Savannakhet Province in the South west of the country. Around 140 thousand hectares of forestland is planned for incorporation into the Ong-Mang National Protected Area.
- The ADB supported project Biodiversity Conservation Corridors (BCC) Project is providing significant resources for improving connectivity in southern Lao PDR:
 - The first phase of the Lao PDR BCI was coordinated by the Water Resources and Environment Agency (WREA) and included establishment of corridors across 11 villages connecting the Xepian and Dong Hua Sao National Protected Areas (NPA) in Champasack province in southern Lao PDR
 - The second phase proposes to maintain and consolidate forest ecosystem connectivity between Xe Xap NPA in Xekong province with Dong Ampham NPA in Attapeu province and in Xepian and Dong Hua Sao NPA in Champasak province. Geographically contiguous village forestry sites were recognized /promoted to form an organic part of two BD corridors that are designed to link critical fragmented habitats together capacity building to improve management of Protected Areas
Overall the capacity and resources available to Protected Area staff are very limited however several recent projects and programs are in place that partially addresses this shortfall in relation to this Target.
- Phase 2 of the BCC Management plans, and substantive funding are in place to enforce BD protection in at least 10 NPAs (from an existing base of 2), 5 PPAs, 3 protection forests and 2 corridors.
- A total of 84 Village development plans have been developed and are in advanced stages of implementation. This process included Land use planning outlining both conservation and protection forest for each of the villages. The community forest land was also issued as communal land title as well as 84 conservation and protection plots were classified and established, and the areas cover 352,939 hectares.
- Capacity building programs for Protected Areas (PAs) and Protection Forests (PFs) Management in Bolikhamxay (BLX), Hua Phan (HP), Luang Prabang (LPB), Xiengkhouang (XK), Khammouane (KM) provinces. More than 200 staff have been trained in various topics and significant support and training provided to the district levels in NPA planning, management and monitoring.
- Through LENS2 and EPF (Second Phase of Lao Environment and Social Project (LENS2) and Environment Protection Fund) there have been projects involving training for compliance and awareness raising on law and regulation for forest protection and forest inventory, protected area boundary demarcation, sight board setting, forest land and forest allocation, land use land use planning and mapping for the local community/ villages land use maps, establishing conservation network and committees.
- The (SAFE Project, 2018a; 2018b). For the Ong-Mang sanctuary has established several livelihood incentive activities
- On a national level institutional capacity building and management planning for PA and PF management and wildlife conservation have been carried out for several Protected areas;
 - Master plan of NPAs ongoing developed, in total 11 NPAs guidelines

- have been prepared and discussed among project team members such as Collaborative management in NPAs, Zoning for conservation and Development in NPAs, Biodiversity monitoring in NPAs, etc.
- 3 NPAs fact sheets have been produced for [Xe Pian, Na Kai Nam Theun, Hin Nam Nor]
- Development of, the database for tracking investment in NPAs, Tiger survey and planning, promotes NPF management.
- Training of 219 (61 females) government staffs, and 1,076 (432 females) villagers have been trained in various topics such as PA management & planning, safeguards, Outreach, Law enforcement.



Target 12

By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

Level of Progress Reported in 5th NR. Little change and requirement for more effort to be made

Assessment of Progress for 6th National Report

No significant Change.

Potentially moving
away from Target

Based on partial
evidence

General Assessment of Progress; Lao PDR is a country with a very high biodiversity values including a high number of species considered to be threatened (Figure 12.2). Anecdotal evidence and broadscale global assessments indicate that biodiversity, including threatened species, is declining within Lao PDR. A definitive assessment of progress towards this target is not possible as there is a paucity of data on the status of biodiversity within Lao PDR. However, Figure 12.1 shows the decline in Red List Index of species survival for Lao PDR from 1995 to 2015. The downward trend indicates a declining survival probability of the species on the Red List Index that occur within Lao PDR. The lower the index the more of the species within the country are considered threatened or at risk. Importantly, the grey shaded area shows the 95% confidence intervals which indicate an increasing level of uncertainty of the survival index during this century. This is not surprising as there has been no progress in terms of systematic collection and dissemination on data relating to any trends concerning biodiversity in Lao PDR for more than a decade.

Figure 12.1 Red List Index for Species Survival in Lao PDR⁷⁴

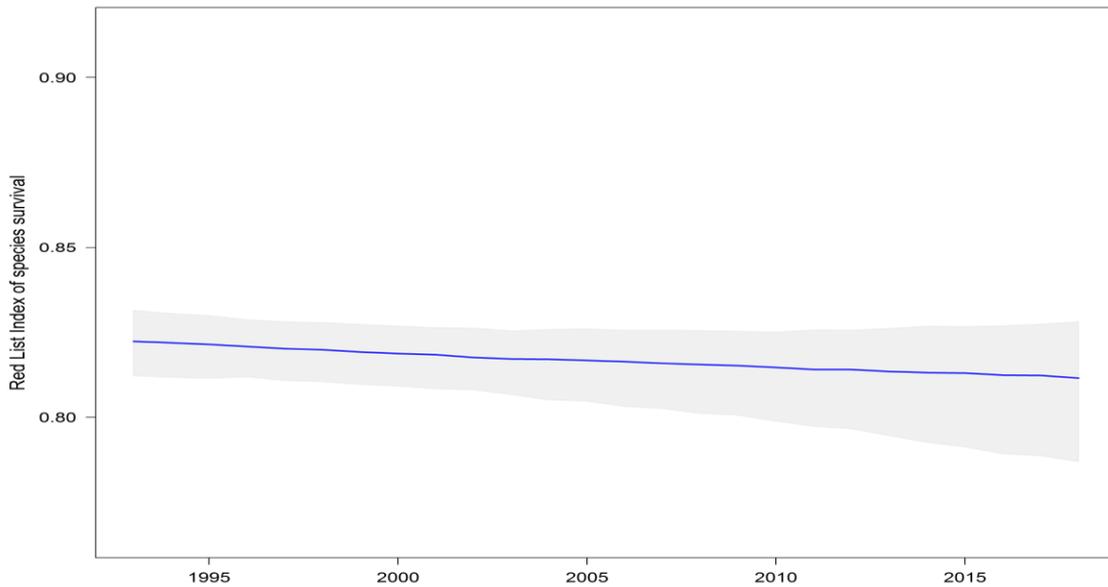


Figure 12.2 Threatened Species Richness in Lao PDR

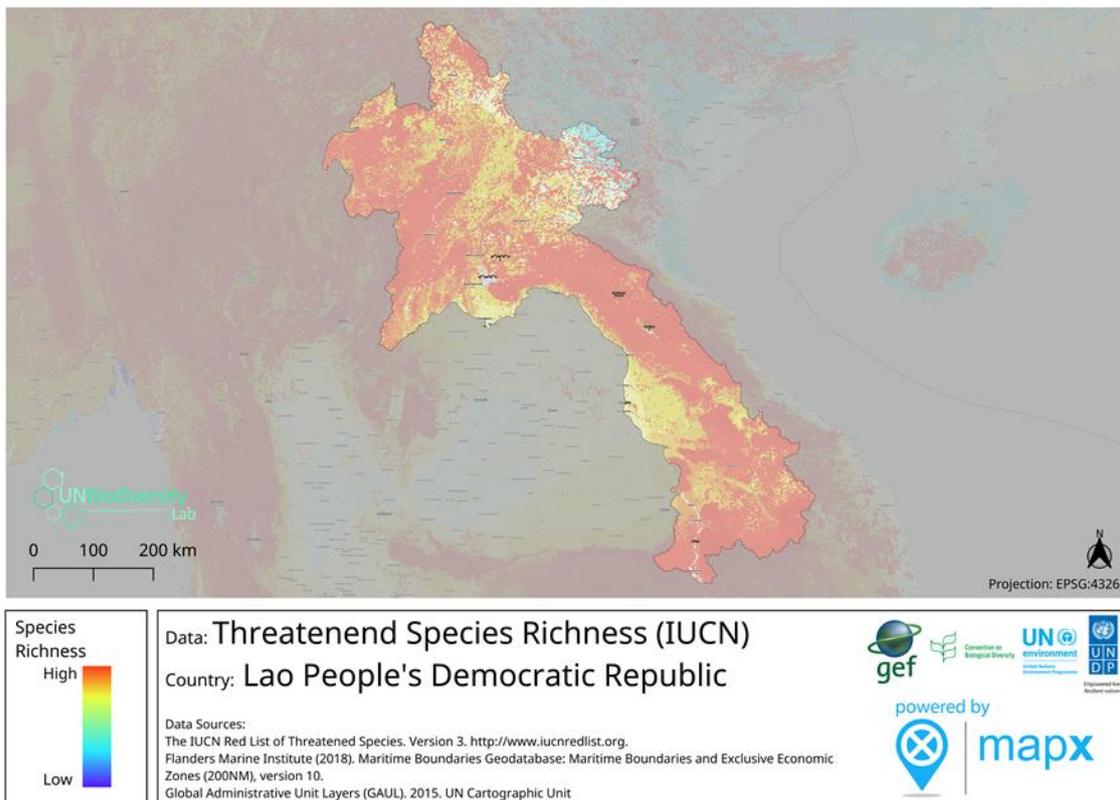


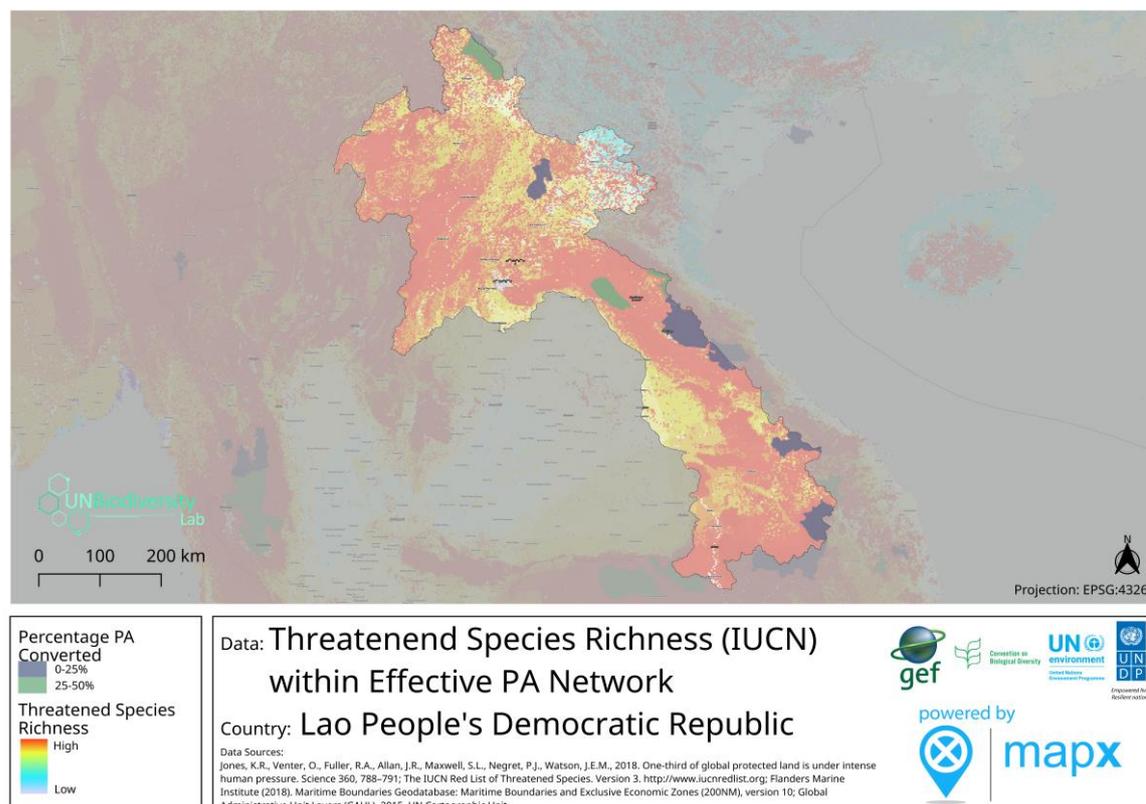
Figure 12.3 below shows how most of the habitat for threatened species lies outside of the current Protected Area Network. This is particularly concerning as hunting; logging and conversion of habitat to agriculture were considered the most significant threats to species on

⁷⁴

BirdLife International, IUCN and UNEP World Conservation Monitoring Centre, 2018. IBAT Country Profile for Lao People's Democratic Republic, Version 2018/5. Available at: <http://www.ibat-alliance.org/ibat-conservation>

the list in Lao PDR. With hunting pressure considered to be the most significant threat (Rodrigues et al 2014). The hunting pressure on vertebrate species in Lao PDR is significant and the impact on biodiversity may be under reported. In a recent study of the range of wildlife offered for sale on 125 trade days of the more than 8055 trade days of the seven largest Markets in Lao PDR, the authors (Greatorex et al 2016) observed over 30000 individual animals for sale with 6452 of those animals considered near or at risk of extinction. Over a year this could mean that 415766 threatened or near threatened vertebrates are offered for sale in just seven major markets across Lao PDR.

Figure 12.3 Protected Area Network and distribution of Threatened Species



Update on Activities since 2015 Report

Biodiversity Monitoring and assessment

- No national wide GoL programs for biodiversity monitoring or assessment are in place
- Several International NGOs including WWF WCS and IUCN are involved in a number of regional specific programs.

Capacity Building and Wildlife Law Enforcement

- Prime Minister’s Order No. 05 was issued on May 8th, 2018 and directs Ministers, Heads of Ministry-Equivalent Organisations, the Vientiane Capital Governor and Provincial Governors across the Lao PDR to take strict action on wildlife law enforcement, compliance with national laws on the management and inspection of wildlife trade, and commitments to international laws.
- There has also been significant action to also support the Lao Wildlife Law Enforcement Network (LAO-WEN) at the provincial and district level call P-WEN and D-WEN as well (DOFI, 2018). The overall objective of this project is to reduce

illegal wildlife trade in key markets and retail hubs in Lao PDR by expanding capacity to detect, discourage, and disrupt organised criminal networks, and prosecute those members involved in illegal wildlife crime. Activities to achieve this include:

- Targeted skills development, awareness campaigns, information-sharing, and enhancing regional cooperation between law enforcement agencies in Thailand, Myanmar and Lao PDR.
- Facilitate the establishment of trust and working relationships across national and border agencies.
- Support is being provided for advanced investigation trainings, and bilateral meetings to increase law enforcement response capacity and trans-boundary cooperation in addressing illegal wildlife trade in central and northern Lao PDR.
- This project is also designed to support law enforcement actions that reflect the severity of wildlife crimes, and to create a penalty environment which discourages participation as the consequences are severe for poachers, traders and buyers.
- There are four priority provinces supported under this project: Vientiane Capital, Oudomxay, Luang Namtha and Bokeo. Rapid responses to active wildlife crime or emerging criminal activities will also be supported if necessary, in other provinces.
- Strengthening of capacity for wildlife and aquatic law enforcement in several target provinces such as: Bolikhamxay, Huaphanh, Khammouane. Several activities have been targeted at capacity building for the staff of the DOFI, POFI, and the district level offices of these agencies.
- The Customs Department is providing support on combating transnational trade in illegal wildlife and timber trade and law enforcement.
 - improved the functional capacity for Lao-WEN strategy including the Customs wildlife law enforcement and anti-smuggling strategy (CWLAS). For anti-smuggling, the Standard Operating Procedure (SOP) and guidelines for the Lao Customs Department's response to illicit wildlife trafficking occurring across international borders.



Target 13

By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.

Level of progress from 5th National Report,
Good progress with significant improvement.
Assessment of Progress for 6th National Report

On track to achieve
target

Based on partial
evidence

General Assessment of Progress: Progress towards the target over the past decade has been consistent. The 5th NBSAP reported a number of programs aimed at protecting the rich agrobiodiversity of Lao PDR. Of particular importance is that both the traditional farmlands and natural habitats of Lao contain a highly diverse agrobiodiversity. For example:

- Vegetable diversity is high. The National Agriculture and Forestry Research Institute have collected more than 2,100 accessions of local vegetables.

- Lao PDR is abundant in Non-timber forest products including plants, barks, vines, tubers and other forest products. These provide a source of food and income to local people. As forests diminish there are opportunities to domesticate these species.
- Aquatic diversity is incredibly high within the country. The Mekong and its tributaries host the largest in-land fisheries in the world.
- Livestock diversity is high with several indigenous breeds of chicken, buffalo and pigs.

Update on Activities since 2015 Report

- Of importance to this Target is the TABI project. This project has worked with hundreds of villages to identify economically important agrobiodiversity plant and animal species and find ways to sustainably manage these through their utilization. Some examples of this include:
 - TABI has been supporting villagers in 5 Villages to domesticate and plant Nor Loy (*Arundinaria petelotii* Camus) in their fallow gardens near their homes. A total of 7 Villages and 143 households have worked with TABI and an additional 50 families have replicated this practice.
 - Developing Khao Kai Noi Clean Seed System: TABI has been supporting an initiative to improve seed quality of Khao Khai Noi (KKN) rice-specialty indigenous rice. Initially TABI support a study to identify and characterize the different varieties of Khao Kai Noi. This led to develop clean seed production for Khao Kai Noi. This project works to improve standards and quality of KKN particularly for industrial production as well as conserve other varieties of KKN.
- The Traditional Medicine Centre of Ministry of Health together with other NGOs in the province and districts has defined more than 16 areas for medicine plants preservation and management.
- Several provinces have developed a book collection of Medicinal Plants of the province and implementing process to disseminate this information to the general populace.

Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services



Target 14

By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Level of progress from 5th National Report, Little change and requirement for more effort to be made

Assessment of Progress for 6th National Report

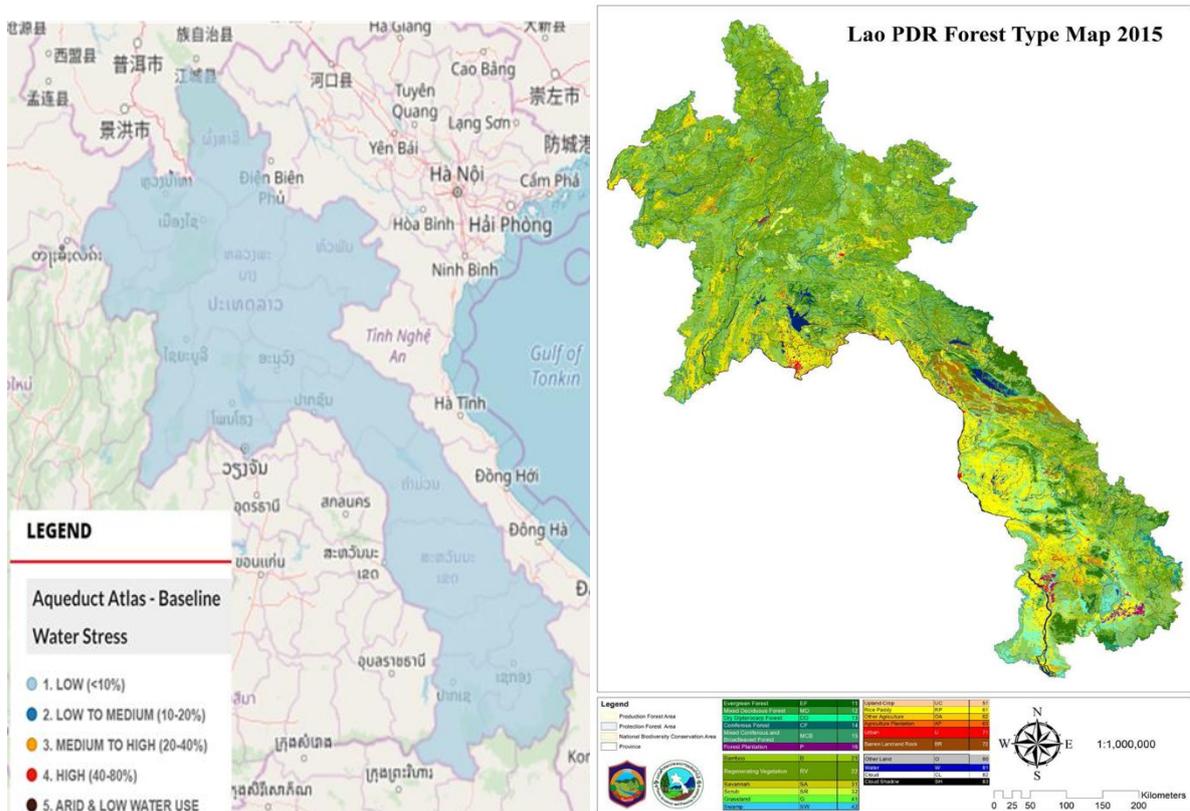
Progress towards target
but at an insufficient
rate.

Based on partial
evidence

General Assessment of Progress; Country wide assessment of the ecosystem services provided by natural systems is lacking in Lao PDR. As a general statement, key ecosystem services such as water security and quality are good and the high level of forest cover would

indicate that the ecosystem services provided by a healthy forest cover are also abundant (See Figures 14.1.) There are several programs aimed at improving the management of catchments to provide ecosystem services with most of these including a focus on the needs of women, the poor and indigenous communities. However, there is a lack of data on the management of key ecosystem types such as wetlands and the role they play in providing key ecosystem services.

Figure 14.1 Baseline Water Stress and Forest Cover in Lao PDR



Update on Activities since 2015 Report

Forest Ecosystems

- Lao PDR Sustainable Forest Management and REDD+ Support Project were established in 2015. The objective of the project was to strengthen the capacity for sustainable forest management through incorporation of REDD+ into the sector strategy and improvement of forest resource information.
- The National Target to increase Lao PDR forest cover to 70% by 2020. The MAF annual report 2015-2016 estimates that there has been around 21,000 ha forest plantation establishment within the national forest estate.
- In addition, natural forest regeneration and rehabilitation is estimated to be around 108,200 ha (MAF, 2017). This has been achieved via both the ADB led Biodiversity Corridor project (see case BCC case study) and private enterprise supporting the central, provincial, district and local community in tree planting.
- The issuing and implementation of Prime Minister Order 15 (PMO15) on Strengthening Strictness of Timber Harvest Management and Inspection, Timber Transport and Business (PMO, 2016). This suspends exports of logs, planks, prohibits imports of illegal timber and timber products, and prohibits project developers or infrastructure construction contractors to carry out timber harvesting them.

Catchment management and Aquatic Systems

- The MONRE draft annual report 2016-2017 reports that at present over 80% of the priority river basins are actively implementing the Water Resources Management Plan from 2016 to 2020 (MONRE, 2017; 2018). A summary of the actions either completed or underway include:
 - The Integrated Water Resource Management Plans (IWRMP) for the priority river basins [Xe Bang Fai, Xe Bang Hieng, Nam Ou] have been developed and some activities have been implemented.
 - The IWRMP of Nam Thuen-Namkading Basin has been developed and implementation is underway within two provinces Bolikhamxay and Khammuane.
 - Water resources protection and management of Nam Xam basin in Huaphanh province (phase 3), Nam Had Basin in Bokeo Province , Nam Se Ta Muak Basin in Savannakhet Province is ongoing
 - A risk assessment for water quality of Nam Sedon and Nam Ngum has been undertaken and reviewed (MONRE, 2018).
 - A total of 180 hydrology stations for water quality checking and monitoring have been established. There are 169 hydrology stations managed by MONRE and 11 stations are managed by MRC.
 - 18 meteorology stations for precipitation measuring were upgraded and 8 hydrology stations or water level measuring has been renovated.
- There are several ongoing water resource management projects which are being implemented at both the provincial and national level such as
 - (1) Hinboun Catchment Management Plans Establishment and Analysis;
 - (2) Namxam Basin Protected and Management Project-Phase 3;
 - (3) Nam-Thuen-Nam Kading Basin Management;
 - (4) Staff Capacity Building on river Basin and Land Management (national level, implementing by DWR; (4) Nam Had Basin Management; and
 - (5) SVK Nam Se Ta Muak Basin Management.
 -
- In 2017 The Ministry of Finance and the World Bank signed an agreement for financing support of \$25 million of additional funding for the Mekong Integrated Water Resources Management (MIWRM) Project. This project has three components. 1) The first component, Regional Water Resources Management, aims to support the MRC in facilitating IWRM dialogue between the Lao PDR, Cambodia, Thailand, and Vietnam, The second component, National Water Resources Management, aims to Strengthen the institutional and technical capacity for Integrated Water Resources Management, the third component, River Basin and Aquatic Resources Management



Target 15

By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.

Level of progress from 5th National Report, Little change and requirement for more effort to be made

Assessment of Progress for 6th National Report

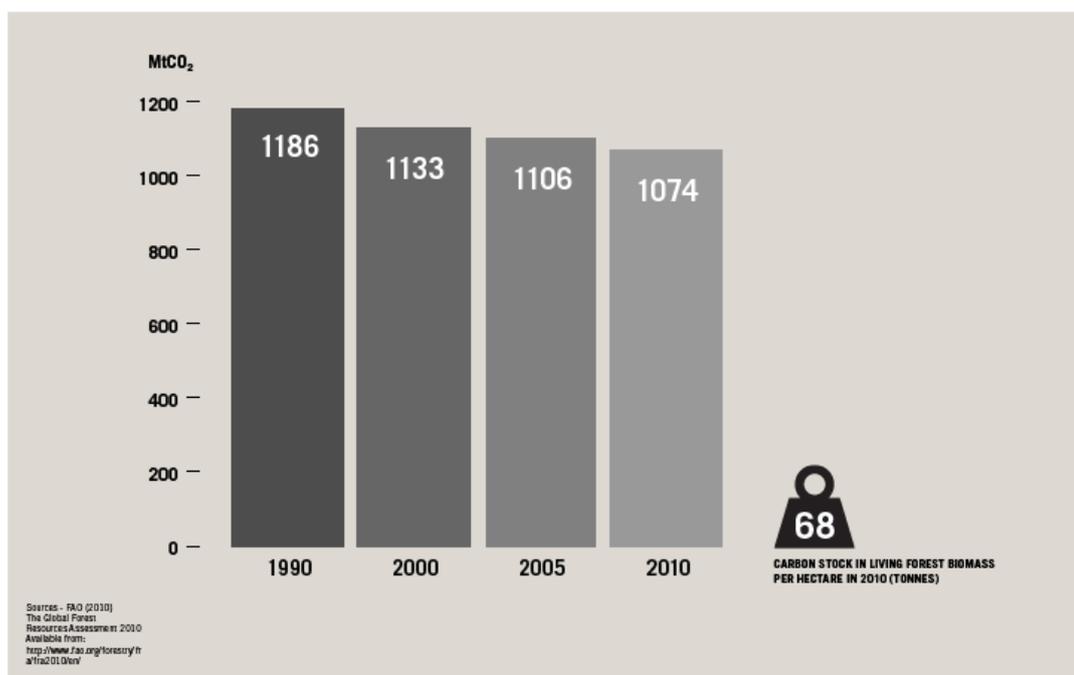
Progress towards target
but at an insufficient
rate.

Based on partial
evidence

General Assessment of Progress; It is difficult to provide a reasonable assessment of progress for this Target as little data exists on the existing condition and thus degradation status of the ecosystems in Lao PDR. At present there has been a concentrated effort within Lao PDR to build the capacity to undertake forest cover and extent mapping and monitoring. A next stage in this development would be to pair with international donors to establish a capability to assess and monitor forest and other habitat condition as part of the Lao Sustainable Forest Management and REDD program (see below).

In general, there has been an overall loss in forest cover. Recent analysis from the Lao PDR Forest Inventory and Planning Division (FIPD) estimated the 2005 forest was just over 61% and the 2015 forest cover was at around 58%. The rate of forest loss from 2005 to 2015 was at around 3.1% (approx. 735,000 ha), Along with declines in Forest cover forest quality has also deteriorated. According to DoF Forest Inventory and Planning Division (FIPD) dense forest (having canopy closure of more than 70%) decreased from 3.2 Mha in 1992 to 840,000 ha in 2012. At the same time open forest increased from 16% to 24.5% of the total forest area over past decades. Forests in Lao PDR hold an estimated 1074 million tons of CO₂ (FAO, 2010), with deforestation and forest degradation in Lao PDR contributing around 51 million tons to annual CO₂ emissions (DOF, 2010). Data from 1990 to 2010 shows a decline in total carbon stocks from 1186 million tons to 1074 million tons over that period (see Figure below).

Total Carbon Stock in Living Forest Biomass



However, The MAF has supplied figures that natural forest regeneration and community forest restoration was about 0.81% in 2015/2016. At this rate the Target for forest ecosystems at least would not be met until 2033 at the earliest. At maturity this restoration would increase the Forest Carbon stocks of Lao PDR by 7.3 Mt per year.

Update on Activities since 2015 Report

- MAF has developed the National Forest Information System. This includes the systematic assessment of quantitative data on three categories forest cover change and carbon stock change every five years (2000, 2005, 2010, and 2015). The forest cover change program is based on the national forest inventory system and also the methodology of the Forest Carbon Partnership Facility (FPCF).
- The MAF annual report 2015-2016 estimates that natural forest regeneration and rehabilitation is 108,200 ha (MAF, 2017). This has been achieved via both the ADB led Biodiversity Corridor project and private enterprise supporting the central, provincial, district and local community in tree planting.
- Lao PDR Sustainable Forest Management and REDD+ Support Project established in 2015 (currently JICA support in forestry sector is merged as a project as F-REDD). The objective of the project was to strengthen the capacity for sustainable forest management through incorporation of REDD+ into the sector strategy and improvement of forest resource information.
- The Sustainable Forestry for Rural Development project (SUFORD) is a multilateral cooperation project between the Government of Lao PDR, the Government of Finland and the World Bank to achieve the sustainable management of natural production forests.



Target 16

By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Level of progress from 5th National Report, Improving and likely to meet Target
Assessment of Progress for 6th National Report

On track to Meet target

Based on partial
evidence

General Assessment of Progress: Lao PDR has ratified the Nagoya Protocol and a number of steps have been put in place to ensure implementation

Update on Activities since 2015 Report

- The Biosafety law and Lao National Framework on the Access to Genetic Resources and the Fair and Equitable Sharing of Benefit Arising from their Utilization were developed by MOST. The guideline, books, brochure, poster, and VDO on ABS has developed and shared with the public.

Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building



Target 17

By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.

Level of progress from 5th National Report, Improving and likely to meet Target
Assessment of Progress for 6th National Report

Likely to Meet target for
adoption

More work required for
implementation

Based on evidence

General Assessment of Progress: Lao PDR is a signatory to the Convention and Has prepared two NBSAPs and submitted a number of National reports. Although there has been considerable progress in commencement of, or planning for, implementation of the NBSAP National Actions, how effective those actions are towards meeting their goals is somewhat lacking. During the preparation of this 6th National Report A review of the effectiveness of the National Actions proposed in the 2nd NBSAP were undertaken. A minority of National Actions (26%) were assessed as being effective. The majority 74% were assessed as being either partially effective or unknown. For 16% of the actions, there was not enough data or the time lapse since commencement was too short to make an assessment and 58% were considered to be only partially effective.

There are many reasons why most actions are assessed as only partially effective. In general, there are significant constraints on effective implementation relating to a range of technical, financial and capacity constraints. The following section provides an assessment of progress for each of the 29 National Targets and Appendix C provides a summary of the obstacles in the way of effective implementation as well as the capacity needs for future effective implementation for all 69 of the National Actions.

Update on Activities since 2015 Report

- The Lao PDR submitted its NBSAP 2016-2025
- Lao PDR is preparing its 6th National Report.



Target 18

By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.

Level of progress from 5th National Report, Little change and requirement for more effort to be made

Assessment of Progress for 6th National Report

Progress towards target
but at an insufficient
rate.

Based on partial
evidence

General Assessment of Progress: Lao PDR has produced a national Framework on the access and benefit sharing of genetic resources. However, programs to implement the Framework are very limited. Likewise, programs to actively implement local knowledge are dependent on individual projects from international donors where that is a requirement.

Update on Activities since 2015 Report

- The Lao National Framework on the Access to Genetic Resources and the Fair and Equitable Sharing of Benefit Arising from their Utilization has been developed. The detail guideline, books, Brochure, Poster, and VDO on ABS has also been developed and disseminated to the general public
- The Sustainable Forestry for Rural Development (SUFORD) Scaling Up Project (MAF, 2017). For community forest management and certification, forest auditing process for two communities in Bolikhamxay and an additional area in Savannakhet province were conducted by the Province Rain Forest Alliance and DOF in 2018.
- The Department of Livestock and Fisheries reports that a total 885 of fish conservation zones have been established (DoLF, 2018). This includes 252 fish conservation zones developed by the local community in Houaphan, Xiengkhouang, Luang Prabang and Phongsaly provinces with support provided by TABI project
- FAO is leading the GEF funded Climate Adaptation in Wetland Areas of Lao PDR (CAWA) project a key objective of CAWA is aimed at supporting the development of management plans for these wetlands that integrate science with the traditional knowledge of the local communities. To date, Institutional settings and arrangement for the adaptation measure/ implementation have been developed, but action towards the plan and strategy on wetland inventory, assessment and management has been limited



Target 19

By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

Level of progress from 5th National Report, Slight improvement but requirement for more effort to be made

Assessment of Progress for 6th National Report

No Significant Change

Based on partial evidence

General Assessment of Progress: There has been very limited progress and no National research program is in placed or planned in this area as funding and human resource capacity constraints are always a problem for developing countries in terms of research and access to the latest information on good practice biodiversity Management.

Update on Activities since 2015 Report

- Within the Nakai-Nam Theun NPA There are four main key research topics. These are (1) *Glyptostrobus pensilis* program: (in collaboration with University of San Francisco, Columbia University and Royal Botanic Garden Edinburgh); (2) Elephant survey (in collaboration with University of Missouri and Nam Theun Power Company); (3) Activities in collaboration with Saola Working Group; (4) Activities implemented by Project Anoulak: on Primate program, Environmental DNA program: (in collaboration with Vigil/FE and Beauval Nature), and wildlife monitoring with camera-trapping.

- A national botanic garden located in Luang Prabang Province was opened for the public in 2016. Pha Tad Ke has established with many partner organizations for the purposes of research and public education. This botanical garden aims to provide research and education on flora of Lao PDR, both in-situ and ex-situ plants, and to promote sustainable ecosystem preservation including eco-tourism.
- Additionally, The National University and MONRE are in the early planning stages for the establishment of an additional botanical garden near the urban center of the capital.



Target 20

By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.

Level of progress from 5th National Report, No change and a requirement for more effort to be made

Assessment of Progress for 6th National Report

No Significant Change

Based on partial evidence

General Assessment of Progress: There is no integrated strategy in place to secure or coordinate funding for biodiversity in Lao PDR from all sources. The major Funding for the NBSAP is via the GoL annual Budget allocations. The Environment Protection Fund (EPF) supported through the LENS II project is emerging as an important financier for capacity building and the management of environmental management and biodiversity conservation. However, in general, little progress has been made towards this Target.

Update on Activities since 2015 Report

- In 2015 LENS II project was established. The scope of the project was expanded to also cover watershed protection forests, build the capacity of the national government to manage and enforce environmental and social legislation. Transition to LENS2 brought additional financing of US\$ 15 million equivalent. Altogether, now US\$ 38.83 million equivalent is singularly financed under LENS2 project1 the project is financed by the International Development Association (IDA) and the Global Environment Facility (GEF) as well as contributions from the government of Lao PDR.
 - **The objectives of LENS II are to** “To help strengthen selected environmental protection management systems, specifically for protected areas conservation, enforcement of wildlife laws, and environmental assessment management”. The LENS2 project supports Policy and Institutional Capacity Enhancement (PICE) and Community Biodiversity Investments (CBI) financing windows, as well as building the EPF capacity and support project administration.

- Lao PDR is also looking at the possibility of using a Payment for Ecosystem Services scheme. Currently the DOF is hoping to establish a consultancy to develop a PES methodology that can be applied to the Theun Hin Boun Hydro power development, Nam Theun 2 Hydro Power Company.

SECTION 5: UPDATED BIODIVERSITY COUNTRY PROFILES

5.1 Biodiversity Facts

- **Status and trend of biodiversity, including benefit from biodiversity and ecosystem service**

The Lao People's Democratic Republic (Lao PDR) is located in the center of the Indo-Chinese Peninsula, bordering on China, Vietnam, Cambodia, Thailand and Myanmar. Approximately 80% of its 236,800 km² landmass is mountainous although it has some floodplains along the Mekong River and its tributaries. About one-third of the country has a slope of over 30%, while two-thirds of the rest of the country has slopes between 20-30%. There are five different eco-regions in Lao PDR: Annamite Range Moist Forests, Indochina Dry Forests, Northern Indochina Sub-tropical Moist Forests, Mekong River and its catchment. More than 40% of its landmass is covered by forests.

There are 25 National Protected Areas covering 4,076,236 hectares. In addition, MAF has been upgraded 3 National Protected Areas to be National Park, such as Nam Et – Phou Louey National Park, Nakai-Nam Theun National Park and Hin Nam No National Park and National Eld's deer Sanctuary. And there are 58 Provincial Protected Areas which cover 481,749 ha and 95 district protected areas covering 423,827 ha.

The faunal biodiversity of Lao PDR is comprised of 166 species of reptiles and amphibians, 700 birds, 90 bats and over 247 mammals. The Mekong River and its tributaries alone are reported to contain approximately 500 species of indigenous fish. In addition, there are an estimated 8-11,000 species of flowering plants. The country's economy depends mainly on natural resources; therefore, the sustainable use of Lao PDR's biodiversity may be one of the keys means for poverty reduction in the country. However, the increasing population in rural areas relies heavily on biodiversity resources, which has led to pressures over the past few years.

- **Main pressures on and drivers of change to biodiversity (direct, indirect)**

A major threat to biodiversity in the National Protected Areas results from nearby villages carrying out clearing for cultivation inside the Park boundaries. It is estimated that 90% of these shifting cultivation activities are carried out by people living in the immediate vicinity of protected areas; 70% of Non-Timber Forest Products are sold by residents inside the protected areas and 30% who enter are from outside the NBCAs.

Another major threat is wildlife harvesting for food done by 70% of the local residents living in or near to the protected areas and 30% by outsiders. The hunting pressure on vertebrate species in Lao PDR is significant and the impact on biodiversity may be under reported. In a recent study of the range of wildlife offered for sale on 125 trade days of the more than 8055 trade days of the seven largest Markets in Lao PDR, the authors (Greatorex et al 2016) observed over 30000 individual animals for sale with 6452 of those animals considered near or at risk of extinction. Over a year this could mean that 415766 threatened or near threatened vertebrates are offered for sale in just seven major markets across Lao PDR.

Both, local and provincial residents use lands inside some of the NBCAs for grazing livestock. This has led to increased human-wildlife conflict and some instances of tiger predation on livestock.

Other threats include hydropower development, mining, infrastructure development, mismanagement of forest plantation, unsustainable timber harvesting and land use change.

5.2 Measures to Enhance Implementation of the Convention

• Implementation of the NBSAP

The goal of the NBSAP for Lao PDR, adopted in 2004, was to maintain biodiversity to contribute towards poverty alleviation. Its main objectives were to:

- (1) Identify important biological diversity components and improve the knowledge base;
- (2) manage biodiversity on a regional basis, using natural boundaries to facilitate the integration of conservation and utilization-oriented management;
- (3) plan and implement a biodiversity-specific human resource management program; increase public awareness of and encourage participation in sustainable management of biodiversity;
- (4) adjust and harmonize national legislation and regulations, including with the provisions of Multilateral Environmental Agreements (MEAs);
- (5) secure NBSAP implementation; and
- (6) promote international cooperation.

The NBSAP for Lao PDR was updated in 2016 (2nd NBSAP) and intends to integrate it into the National Socioeconomic Development Plan. It is comprised of five strategies

- (1). Protect the country's diverse and economically important ecosystems,
- (2). Integrate the Value of Biodiversity to Socio-Economic Decision Making to Ensure Sustainable Use and Funding,
- (3). Strengthen the knowledge base for strategic decision-making,
- (4). Inspire and Enable actions through better Communication, Education and Public awareness, and
- (5). Enable Effective Preparation and Implementation of Plans and Programs, 29 national target and 69 actions.

• Action taken to achieve the 2020 ABT

To achieve the 2020 Aichi Biodiversity Targets through NBSAP implementation, the Government has set up a series of corresponding national targets intended to both meet local needs and to contribute to meeting the Aichi Targets.

National targets to improve the development and management of NBSAPs include:

- Achieve National Goal of 70% forest cover of the total national area by 2020;
- 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;
- At least 250 Fish Conservation and breeding sites (that include local /indigenous species) are established and are recognized /supported by stakeholders living in the watersheds where these sites belong;
- National wetlands strategy in place while management plans with substantive funding are implemented in at least 12 important wetlands sites;

- Protect water quality and quantity in 10 river basins to meet water quality and quantity standards and to ensure minimum negative impact;
- 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;
- The protection and sustainable use of biodiversity rich agricultural landscapes demonstrated in at least 1 site per province;
- The Agriculture and forestry sectors have reduced the use of hazardous agro-chemicals; 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;
- The waste generation in the municipal areas across the country are reduced; 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;
- Geographically contiguous village forestry sites are recognized /promoted to form an organic part of 2 BD corridors that would link critical fragmented habitats together;
- 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;
- 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;
- Improved regulations are enforced and capacities improved to protect plants (including rice) and animals in priority areas from alien species invasion;
- 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;
- Mainstream the Integrated Spatial Planning (ISP) in the development of cities and rural areas for sustainable utilization;
- 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 environmentally sound manner;
- 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);
- 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;
- Lao legislation is enacted to reflect requirements under the Nagoya Protocol on ABS from the use of genetic resources is in place and implementation is piloted in at least 3 selected areas;
- 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 conventions;
- International/regional collaboration is optimized to accelerate the build-up and use of knowledge on the nature of biodiversity resources and relevant good practices;
- Key civil service personnel from key agencies demonstrate improved knowledge and skills in biodiversity planning and implementation;
- Increased public awareness on the value of biodiversity among targeted stakeholder groups including those in 24 NPAs;

- The value of biodiversity and its sustainable use is incorporated in formal and informal education programs;
- Sustainable financial mechanism for timely obtaining and transparent utilization is developed and implemented;
- 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;
- Integrated strategy for tapping multiple funding sources (internal, external & innovative) in place so that funding windows for BD (Agro-BD) increase by at least 50% by 2020.

Targets aimed at protecting the country's diverse and economically important ecosystems several actions includes:

- Continue participatory review and clarification of current forest classification systems and relevant regulations on primary and secondary logging by both communities and private sector;
- Improvement of compliance monitoring and facilitation of private sector contribution to forest resources management and rehabilitation of damaged ecosystems;
- 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.);
- 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*);
- Manage for sustainable forest production to cover at least 80% of production forests;
- Update the Forest Strategy 2020 to incorporate experience and good practices leading to forest certification;
- Review rural employment generation experience of NRM based enterprises and adoption of enhancement measures;
- Strengthening of organizations dealing with shifting cultivation stabilization, and village forestry allowing for communities to sell wood of production forest;
- Establishment and monitoring of Fish Conservation Zones (that include local/indigenous species).;
- Establishment and monitoring of watershed programs that incorporate systems wide support of fish breeding sites;
- Formulate national wetlands inventory and strategy;
- Development of implementing guidelines for the Fishery Law that consider biodiversity concerns;
- Facilitation of cooperative agreements with neighbouring countries to more effectively conserves and manages fish resources in Mekong and other rivers;
- 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;
- 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;
- Mainstreaming IWRM Plans into ISPs and to ensure well-coordinated and sustainable water resources protection, management and development;
- 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 change;

- Accelerate the conservation of wild rice varieties and the registration of endemic and recently discovered plant species of agricultural and medicinal value;
- Market studies and value chain analysis establishing commercial viability of and realistic options for local varieties and breeds;
- 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;
- Promote IPM (Integrated Pest Management);
- Regulate the use of agro-chemicals; Facilitation of urban environment planning in selected provincial capitals to protect biodiversity rich ecosystems that serve urban areas;
- Provision of training and advice on urban and industrial waste pollution prevention measures, especially on waterways /wetlands;
- Develop and operate a centralized environmental pollution database including collection of data and information covering solid waste, hazardous material, and soil pollution;
- 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 practicing 3 R's concept (Reduce, Reuse, and Recycle in Provincial capitals and larger towns in 18 provinces;
- Participatory preparation and improvement of the PA management plans and protection forest management and corridor management plans;
- Assessment and program development for conserving Dry Dipterocarp Forests; PA Staff capacity Strengthening within 70% of Protected Areas;
- Development of geographic networks of at least 69 village forestry sites as part of BD corridor protection and sustainable use system;
- Updating of the RED list; Capacity Development for law enforcement in support of national commitments to CITES;
- Implementation of priority protection measures for seed sources of indigenous tree species seed resources;
- 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;
- Prepare assessment, Conservation and Utilization program for medicinal plants including seed conservation;
- Establish at least three botanical gardens in at least three provinces; Identify, characterize and prioritize the invasive alien species;
- 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).

Targets relating to the Value of Biodiversity to Socio-Economic Decision Making to Ensure Sustainable Use and Funding actions being carried out include:

- Documentation updating, communication of evidence and demonstration of application of biodiversity values and contributions towards poverty reduction;
- 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;

- 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;
- Identification and incorporation of critical biodiversity in the ESIA system and training and dissemination of information among EIA practitioners and decisions makers;
- Capacity building for key provincial offices responsible for the review approval and compliance monitoring process of proposed private investments in forest lands;
- Development of recommendations on how to adequately consider biodiversity protection in comprehensive land use planning protocols;
- Investigate CSR aspects of investment promotion strategy and identify areas of responsibility for CSR promotion, enforcement, orientation and training by various government departments;
- Promote the utilization of renewable energy for reducing forest loss and the releasing of carbon dioxide and methane into atmosphere.

Targets to strengthen the knowledge base for strategic decision-making actions being carried out include:

- Formulation of guidelines under the Intellectual property rights law to support protection of traditional knowledge in biodiversity conservation and use;
- Policy and Program formulation and strengthening of ABS as stipulated under the Nagoya Protocol with participation from wide range of stakeholders;
- Establish knowledge base of Traditional Knowledge on biodiversity conservation and sustainable use;
- Developed an updated national research and development program to support biodiversity users in agriculture, medicine, tourism, among others;
- Collaboration with other conventions to capture, analyze, set up data bases and exchange experiences with other countries;
- Promotion of trans-boundary cooperation for biodiversity monitoring and action;
- Participate in bilateral and multilateral cooperation on BD to help address high priority of NBSAP R&D needs;
- A centralized and integrated database system (IT) for efficient and effective NRE data and information management and sharing is developed;
- 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.

Targets to inspire and Enable actions through better Communication, Education and Public awareness actions being carried out include:

- 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;
- Training Needs Analysis and Training Program formulation for NBSAP implementation; Implementation of communication programs in pilot sites based on analysis of stakeholder attitudes;
- Increased awareness and knowledge of the mass media regarding biodiversity values, conservation and sustainable use strategies;
- Develop the curriculum for both formal and informal education for use by the Ministry of Education based on assessment of current efforts;
- Development and piloting of a reflective teaching guides/training course for biodiversity education.

Targets to enable Effective Preparation and Implementation of Plans and Program within Lao PDR include:

- Identify funding sources and permanent fund to ensure the sufficient and consistent funding; Piloting of REDD+ in areas of at least 8 biodiversity rich forest sites.; Piloting of PES areas in at least 3 sites to support hydropower operations;
 - Establish policy and guidelines for the application of the concepts of Payment for Ecosystem Services (PES) and Reduction of Emission from Deforestation and forest Degradation (REDD+);
 - Pilot preparation of participatory provincial level biodiversity planning in 3 provinces (PBSAP initiative);
 - Development of practical guidelines including minimum conditions for stakeholder consultation and participation in NRM/BD plans and decision making;
 - Assessment of internal sources of financing implementation of NBSAP including status of various funds created by law;
 - Capacity development for resource mobilization.
- **Support mechanisms for national implementation, e.g. legislation, funding, capacity-building, coordination, mainstreaming**

Lao PDR has several relevant legislative instruments related to biodiversity; All of the key legislation is also available online⁷⁵.

Laws:

- The Wildlife and Aquatic Law No. 07/NA dated 24th December 2007 (revised 2019)
- The Forestry Law (amendment) No. 064/NA dated 13 June 2019
- Land law 2003 (revised 2019)
- The Environment Protection Law, No. 29/NA dated 18 December 2012
- The Law on Livestock and Veterinary Matters No. 08/NA 2016
- The Law on Criminal Procedures No, 17/NA 2012
- The Penal Law (Penal Code), No. 12/NA 2005
- The Customs Law No. 04/NA, 2011, revised in 2014
- The Law on Drugs and Medical Products, No. 07/NA, 2011
- The Law on Food No. 33/NA, 2013
- This Law on Tourism No. 32/NA 2013
- The Law on Enterprise No. 46/NA, 2013
- Law on Water and Water resources
- Law on Meteorological and Hydrology

Decrees:

- Decree No 134/PM on Protected Areas 2015
- Decree No 333/PM on Protection Forests 2010
- Decree No 21/PM on Environmental Impact Assessment

Orders:

- Prime Minister No. 15/PM (Vientiane Capital, date 13.05.2016) Order on Strengthening Strictness of Timber Harvest Management and Inspection, Timber Transport and Business

⁷⁵ : <http://www.laoofficialgazette.gov.la/index.php?r=site/list&old=0>

- Prime Minister No. 05/PM Order on the management and inspection of prohibited wild fauna and flora was declared the National Wildlife and Aquatic Crime Response Action Plan of Lao PDR

Instruction:

- Instruction No 54/MAF, on the expansion and implementation of the Order of the Prime Minister No. 15, dated 13 May 2016 on strengthening strictness on timber harvest management and inspection, timber transportation, and business.
- Instruction No. 2806/MONRE on strengthening the Administration of Aquatic Animal and Wildlife Nationwide
- In 2015, Notification from the Government No 1364/Go.ED on the implementation of CITES, banning the trade of aquatic animals and wild fauna and flora
- Order No. 64/PM dated 15 January 2018 calling on MAF to prepare a Decree on the Management of Wildlife Trade to be promulgated by February 2019, to appoint a CITES implementing committee by January 2018 and to issue a Government Decree for the systematic management of wildlife farms to be submitted to the Government by March 2018.
- Instruction No 2086/MONRE Strengthening the Administration of Aquatic Animal and Wildlife Nationwide 2016

Various funding mechanism are being used to support NBSAP implementation. These include the Lao PDR Official Development Assistance (ODA) programme as well as funds from donors, international organizations and development partners such as: the GEF, the World Bank, ADB, EU, KfW, UNDP, SDC, IFAD, JICA, and GIZ.

Given the complexity and diversity of sources of development finance and dynamically changing development cooperation landscape, Lao PDR has found value in galvanizing its efforts to improve and adjust laws, policies and partnership mechanisms at all levels to reflect the current reality. The Vientiane Declaration on Partnership for Effective Development Cooperation (The Vientiane Partnership Declaration) signaled a shift from traditional ODA towards greater partnerships, and towards a more comprehensive and inclusive range of development financing and resourcing options. The overall ODA flow and allocation is based on donor disbursement, disbursement by types of cooperation, bilateral cooperation, multi-lateral cooperation and international financial cooperation⁷⁶. Funding is also targeted at supporting capacity building and coordination.

The major mechanism for Mainstreaming of the NBSAP is the sector based mandate that links the national actions mentioned in the NBSAP with the NSEDP via 10 different sector-working groups (SWG). These are coordinated by the Department of International Cooperation (DIC). The ten Sector Working Groups (SWGs) are the key coordination platforms for each thematic area of development in Lao PDR's Round Table Process. They are led by the Government and include development partners, civil society organisations and representatives from the private sector⁷⁷. The groups serve as discussion forums, aim to build consensus on development priorities, and make development cooperation more effective, as set out in the Vientiane Declaration of 2015. A relevant Ministry chairs each group while development partners, based on their expertise, serve as co-chairs. The Department for International Cooperation in the Ministry of Planning and Investment acts as an overall coordinating agency. The Department also manages the meetings of SWG Chairs and Co-Chairs.

⁷⁶ <https://rtm.org.la/wp-content/uploads/2019/05/FAIR-2018-1.pdf>

⁷⁷ <https://rtm.org.la/sector-working-groups/overview/>

- **Mechanism for monitoring and reviewing implementation**

At the present there is no specific programme in LaoPDR for NBSAP monitoring and reviewing.

5.3 National Contacts

- **CBD**

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|--|---|
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| Ministry of Natural Resources and Environment (MoNRE), Vientiane, Lao People's Democratic Republic | CBD Secondary NFP |
| Ministry of Natural Resources and Environment (MoNRE), Vientiane, Lao People's Democratic Republic | CHM NFP |
| National Protected Area Management Division Department of Forestry (DoF) Ministry of Agriculture and Forestry (MAF) P.O. Box 2932 Thatdam Road, Vientiane, Lao People's Democratic Republic | Protected Areas NFP |

- **Cartagena Protocol on Biosafety**

| | |
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- **Nagoya Protocol on Access and Benefit-sharing**

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- **Other relevant focal points, e.g. resource mobilization, Programme of Work on Protected Areas**

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<https://www.pha-tad-ke.com>
<https://www.phakhaolao.la/en>
www.globalforestwatch.org
www.protectedplanet.net

Appendix A: Personnel in involved in developing the 6NR

- Dr. Peter Smith International Biodiversity Consultant
 - Dr. Saykham Boutthavong 6 NR National Consultant
 - Dr Margaret Jones Williams, Head of the Natural Resources Management and Climate Change, UNDP
 - Dr. Inthavy Akkharath, Director General, Department of Water Resources, MoNRE
- TWG members joint the training and consultation progress

- TWG1=Education and Research:

| No | Name & Surname | Organization/Ministry/Institution |
|----|---------------------------------|---|
| 1 | Asso. Prof. Dr. Niane Sivongxay | Faculty of Natural Science, NUOL |
| 2 | Dr. Bounsavanh Duangboupha | Faculty of Environmental Sciences, NUOL |
| 3 | Dr. Somvang Phimmavong | Faculty of Forest Science, NUOL |
| 4 | Mr. Banchong Lathavarn | Ministry of Education |

- TWG2=Agriculture and Forestry:

| No | Name & Surname | Organization/Ministry/Institution |
|----|---------------------------|---|
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| 3 | Mr. Khamphone Bounthavy | Department of Forestry Inspection, MAF |
| 4 | Mr. Outhay Vongsa | Department of Forestry, MAF |
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| 5 | Ms. Xaysomphon Souvannavong | Department of Climate Change, MONRE |
| 6 | Ms. Daophaphone Bounphakhom | Department of Water Resource, MONRE |
| 7 | Mr. Kingkeo Sengsouvanh | Department of Policy and Legialtion, MONRE |
| 8 | Mr. Somphone Buasavanh | WWF |

- TWG4=Science and Technology:

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| 2 | Mr. Mua Xayvue | The Institute of Medicine and Traditional Medicine, MOH |

- TWG5=Energy and Mining:

| No | Name & Surname | Organization/Ministry/Institution |
|-----------|------------------------------|--|
| 1 | Mr. Xaimoua Mouamorja | Department of Energy Business, MEM |
| 2 | Mr. Bounmy Keovongsa | Department of Mining, MEM |
| 3 | Representative from MEM | Department of Energy Policy Planning, MEM |
| 4 | Ms. Sonephavanh Liemphachanh | Lao National Mekong River Commission Secretariat |

- TWG6 Culture and Tourism:

| No | Name & Surname | Organization/Ministry/Institution |
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| 2 | Mr. Phone Viphonehiane | National Institute/ Lao Academy of Social Science |
| 3 | Mr. Phansana Mahaphon | Lao Women Union |
| 4 | Representative from MPI | Department of International Cooperation, MPI |

- Support Team from Government Department;

- Inthavy Akkharath, PhD
Director General of Department of Water Resources
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- Mrs. Sengphasouk Sayavong
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- Miss Pingpong Boualapha
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Appendix B: Summary of Consultation Workshop on Sixth National Report (6NR)

| Date | Workshop | Number of participants Total (Female) | Stakeholders' engagement |
|-----------------|---|--|---|
| 14 June 2018 | Technical Working Group Consultation Workshop on 6NR, CBD | <p style="text-align: center;">38 (9)</p> <p style="text-align: center;">Joint by key government sectors (agricultural, forestry, land, water, environment, energy, public transportation, etc), university, mass organizations, civil society organization, non-government organization (NGOs), international organization</p> | <ul style="list-style-type: none"> ○ Presented an overview of 6NR work plan, approaches, and the timeframe; ○ Introduced the data collection methods, data needs for 6NR, which related to the progress, actions and targets on NBSAP and ABT; ○ Established and formed TWGs to support the 6NR preparation progress, especially data collection, and data entry on the various action and target in the NBSAP; <ul style="list-style-type: none"> ○ TWGs included: Education and research institute; Agriculture and forestry; Social and environmental; Science and Technology; Energy and Mine; Cultural and Tourism ○ Discussed the progress how to involve the TWGs in the data collection and entry data into the 6NR tracking spreadsheets, including the identifying the needs for using online reporting tools/ data collection tools. |
| 20 June 2018 | Training Workshop on Data Collection Tool/ Online Reporting Tool for 6NR, CBD | <p style="text-align: center;">16 (4)</p> <p style="text-align: center;">Joint by TWG members</p> | <ul style="list-style-type: none"> ○ Reviewed and familiar with structure of 6NR online reporting tool and tabs; ○ Introduced the methods and data entry approaches on Excel spreadsheets, which links to the NBSAP's targets; ○ Defined information needs for each sector and proceeded data entry in Excel spreadsheets; |
| 25-27 July 2018 | Training Workshop on Data Collection Tool/ Online Reporting Tool for 6NR, CBD | <p style="text-align: center;">26 (9)</p> <p style="text-align: center;">Joint by TWG members and technical staffs from Education and research institute; Agriculture and forestry; and included CSOs, NGOs</p> | <ul style="list-style-type: none"> ○ Presented structure of 6NR online reporting tool and tabs; ○ Introduced the methods and data entry technic on Excel spreadsheets |

| | | | |
|------------------|---|--|--|
| 6-7 August 2018 | Training Workshop on Data Collection Tool/ Online Reporting Tool for 6NR, CBD | 33 (15) Joint by TWG members and technical staffs from Social and environmental; Science and Technology; Energy and Mine; Cultural and Tourism; and included CSOs, NGOs | <ul style="list-style-type: none"> ○ Introduced the linkage of Excel spreadsheet and NBSAP ○ Presented data and information from 5NR; ○ Grouped participants by sectors and data entry by group ○ Entered data and information into Excel spreadsheets of the national target, action on national targets by sectors ○ Checked data and information by sectors |
| 09 November 2018 | Consultation workshop on 6NR preparation progress | 36 (13) Joint by TWG members, key government sectors, university, mass organizations, civil society organization, non-government organization (NGOs), international organization | <ul style="list-style-type: none"> ○ Presented the progress of 6NR preparation; ○ Presented the overall structure of the 6NR, the outline of the report and sample case study; ○ Presented and discussed on the result of the data sheet such as the result of NBSAP implementation measures taken, assessment of their effectiveness, associated obstacles and scientific and technical need, the assessment of progress towards each national target, and the national contribution to the achievement of each Aichi Biodiversity ○ Worked in groups and reviewed the results of data of Excel spreadsheet |
| 07 December 2018 | Consultation workshop on 6NR preparation progress | 30 (9) Joint by TWG members, key government sectors, university, mass organizations, civil society organization, non-government organization (NGOs), international organization | <ul style="list-style-type: none"> ○ Presented the progress of 6NR preparation; ○ Presented the structure of 6NR, and draft of case study; ○ Presented and discussed on the results of the data sheet and draft description of national targets |
| 28 June 2019 | Consultation workshop on 6NR finalization | 44 (15) Joint by TWG members, key government sectors, university, mass organizations, civil society organization, non-government organization (NGOs), international organization | <ul style="list-style-type: none"> ○ Presented the progress of 6NR preparation; ○ Presented the structure of 6NR, and draft of 6NR ○ Discussed on data gaps and collected the feedback, comments and suggestion from stakeholders. |

Appendix C: Obstacle and Capacity Needs: Table 1 Overall Summary of Obstacle and Capacity Needs. Table 2 Obstacle and Capacity Needs of each National action

Table 1

| Items | Obstacles and barriers | Capacity needs |
|-----------------|--|--|
| Technical | <ul style="list-style-type: none"> - Specialization in specific area - Information gaps, & limited - Information sharing system is not functioning - Advanced tool & equipment | Need capacity building to all items, but still unclear on how quantify the needs in each actions? The capacity building program can be developed by relevant sectors with supporting by the donors and the development partners organizations. |
| Financial | <ul style="list-style-type: none"> - Project based, and depends on int'l donors - Limitation of gov. funding and allocations - Unclear contribution from public | |
| Human resources | <ul style="list-style-type: none"> - Limitation high qualify staffs - Imbalancing of abilities and resources between central & local levels | |
| Governance | <ul style="list-style-type: none"> - Overlapping policy & framework - Weak in managements - Cross sector coordination is weak and slow - Stakeholder's involvement is limited | |

Table 2:

| Ref | Actions | Nat'l Strategy | ABT | Nat'l target | Obstacles | Capacity Needs |
|--|---|----------------|-----|--------------|--|--|
| Strategic Goal A: Cause and mainstreaming | | | | | | |
| 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 | 1 | 2 | 1 | <ol style="list-style-type: none"> 1. numbers of national qualified staff is limited, complex procurement process causing delay in implementation; 2. Technical support is limited; private sectors involvement is also limited; 3. Insufficient fund for fieldwork | <ol style="list-style-type: none"> 1. Need to train [land use classification, advanced GIS application, setting up portal information server management and maintenance] for both central and local government; 2. Improve [legal framework, classification manual, forest definition]; 3. Set up coordination platform for |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l target | Obstacles | Capacity Needs |
|-----------|---|----------------|-----|--------------|---|--|
| | | | | | equipment is limited especially at the provincial and district levels | relevant stakeholders; |
| 1.1.2 (a) | Manage for sustainable forest production to cover at least 80% of production forests | 1 | 4 | 2 | 1. Implementation and monitoring is limited; 2. Timber harvesting in PFAs is on holds due to enforcing of PMO 15; 3. Livelihood supporting of local community inside and bordered with PFAs is limited; | 1. Enhancing PFAs monitoring system; 2. Improve PFAs information system; 3. Providing more alternative livelihood support to the local community inside and surrounding PFAs including awareness raising; 4. Support VUF to access to the commercial process |
| 1.1.2 (b) | Update the Forest Strategy 2020 to incorporate experience and good practices leading to forest certification. | 1 | 2 | 2 | 1. Study & review of FS 2020 have done four years ago, but the update FS 2020 did not take place; 2. Assessment of FS 2020 implementation and its information system is limited; 3. Information system on linkage of FS2020 and other strategies implementation is limited. | 1. Need to synergy of FS 2020 together with other strategies and including NSEDP, SDGs, Green Growth Policy |
| 1.2.2 (a) | Formulate national wetlands inventory and strategy | 1 | 2 | 4 | 1. Regulation, plan and strategy on wetland managements is limited; 2. Wetland information system, impact on wetland, resources and surrounding ecosystem is very limited; | 1. Establish of wetland management committee in each level; 2. Wetland inventory and assessment both fund & technical supports; 3. Develop a wetland model for each region and different level in the north, central and southern regions; 4. Continue support RAMSAR site in central and southern. |
| 1.4.2 (b) | Develop and implement awareness raising programs for 1) behavior | 1 | 1 | 10 | 1) Tools, regulation, participation, implementation, awareness level is | 1) Provide training for central and local staffs, |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l target | Obstacles | Capacity Needs |
|-----------|--|----------------|-----|--------------|--|--|
| | change from traditional waste handling (burn, dump and throw away) to proper waste handling (source separation and storage) and 2) waste reduction through practicing 3 R's concept (Reduce, Reuse, and Recycle in Provincial capitals and larger towns in 18 provinces | | | | low and limited; 2. Relaxing of implementation the law | 2) Raising awareness, included in the education curriculum; and strictly enforcing the regulations; 3. Setting up urban waste management system as Japan or Singapore models; 4. More funding & technical support; 5. Support PPP on recycling investment program |
| 2.1.1 (a) | Documentation updating, communication of evidence and demonstration of application of biodiversity values and contributions towards poverty reduction | 2 | 2 | 16 | 1. Numbers of qualified IT personal, budget to maintain the database and dissemination is limited | 1. Nomination of responsible qualified staff; 2. Allocation of specific budget for this activity |
| 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 | 2 | 2 | 17 | 1. National Land Use Master Plan has approved from national assembly, but does not provide the detail provision and implementation plan on mainstreaming into the social economic development plan for the provincial and district level; 2. insufficient budget , skill of the staffs is limited | 1. Provide training for staffs in develop detail plan for the provinces and districts; 2. Sharing information between central and provincial and district level; |
| 2.2.1 (a) | Review of effectiveness of incentives and disincentives (including economic, financial and tendril incentives) among business | 2 | 3 | 18 | 1. Low interest from the private sectors; 2. Lack of incentive to the local community authority to protect the | 1. Develop detail plan, support local authority, and train staffs, community and private sectors in various topic; 2. Develop incentive mechanism for |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l target | Obstacles | Capacity Needs |
|------------|--|----------------|-----|--------------|---|---|
| | and community stakeholders to conserve biodiversity in the agriculture, natural resource, and other key sectors | | | | bio resources; 3. Existing mechanism of incentive planning and management is weak; | supporting joint implementation activities of the government, private sectors and local community. |
| 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 | 2 | 2 | 18 | 1. Lack of research on species, lack of scientific identification and nomenclature of several species; Insufficient funding and national experts for research; | 1. Provide short term training and long term on specific fields to related staff under MAF,MONRE (from central to local level) |
| 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 | 2 | 4 | 18 | 1. Insufficient funding, discontinue capacity building and building capacity staff | 1. Regular plan for capacity building, and budget plan |
| 2.2.1 (d) | Development of recommendations on how to adequately consider biodiversity protection in comprehensive land use planning protocols | 2 | 2 | 18 | 1. Information on the species is limited and outdated, and including key species list out of date; 2. Lack of biodiversity assessment during land use planning; 3. Specific plan for key species protection and monitoring is limited | 1. Develop detail plan with all stakeholders for protect the key species; 2. Assess all bio resources and incorporate with the land use planning; 3. Setting up monitoring plan for each period |
| 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 | 2 | 4 | 19 | 1. Many private sectors take advantages from their investment; 2. The assessment of feasibility study, ESIA, ESMMP is not comprehensive for many companies; 3. Many companies have capital and ability to support society, but many | 1. Improve the framework for private sectors and company to support the community; 2. Government set up the incentive mechanism for the company who complies with the regulation and support the development of the community and society; |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target | Obstacles | Capacity Needs |
|------------|--|----------------|-----|--------------|--|--|
| | | | | | of them lack interest to support to develop the community | 3. Raising awareness the community on social safeguards and right to the resources; |
| 2.2.2. (b) | Promote the utilization of renewable energy for reducing forest loss and the releasing of carbon dioxide and methane into atmosphere | 2 | 4 | 19 | 1. Lacking use of waste from sawmill, agriculture to energy; 2. Technic and equipment to convert waste to energy is limited; 3. Many companies in renewable sector want to comply with CDM scheme, but many of them is not successful; 4. Lack of incentive, and guideline to support and promote of using renewable energy | 1. Establishing committee, takes forces and support local government develop incentive mechanism; 2. Apply new technology for energy, wood and agricultural processing; 3. Raising awareness and promote the local community to use charcoal and fuel wood efficiency; |
| 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 | 4 | 2 | 24 | | |
| 4.1.1 (b) | Training Needs Analysis and Training Program formulation for NBSAP implementation | 4 | 1 | 24 | | |
| 4.1.2 (a) | Implementation of communication programs in pilot sites based on analysis of stakeholder attitudes | 4 | 2 | 25 | | |
| 4.1.2 (b) | Increased awareness and knowledge of the mass media regarding biodiversity values, conservation | 4 | 1 | 25 | 1. No detail plan on awareness raising; 2. Tools and equipment of media is | 1. Set up the plan and awareness team or media group, association, etc; 2. Training the media staff for biodiversity |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l target | Obstacles | Capacity Needs |
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| | and sustainable use strategies. | | | | limited; 3. Lacking the awareness team in the province and district levels | values, conservation and sustainable use |
| 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 | 4 | 1 | 26 | 1. Informal curriculums are based NGO funding, not systematics; 2. contents of formal curriculum is limited | 1. Update content of formal curriculum every 2 generations; 2. regularly supported fund for informal curriculums |
| 4.1.3 (b) | Development and piloting of a reflective teaching guides/training course for biodiversity education | 4 | 1 | 26 | 1. no specific biodiversity curriculum, lack/limit biodiversity field practices and practice tools | 1. Funding, practice tool and field practices |
| 5.1.1 (d) | Establish policy and guidelines for the application of the concepts of Payment for Ecosystem Services (PES) and Reduction of Emission from Deforestation and forest Degradation (REDD+). | 5 | 2 | 27 | 1. REDD+ strategy is developed, but not yet for PES | 1. Develop detail guideline to implement the REDD+ |
| 5.1.2 (a) | Pilot preparation of participatory provincial level biodiversity planning in 3 provinces (PBSAP initiative). | 5 | 2 | 28 | 1. Coordination on PBSAP is limited due to restructure of Forestry sector organization; 2. Local expert to support the process is limited, it depends on the project support such as TABI, IUCN; | 1. Train local staffs on strategy planning; 2. Links the national to provincial program? |
| 5.1.2 (b) | Development of practical guidelines including minimum conditions for stakeholder consultation and participation in NRM/BD plans and decision making. | 5 | 2 | 28 | | |
| | | | | | | |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l target | Obstacles | Capacity Needs |
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| Strategic Goal B: Pressure and Sustainable Use | | | | | | |
| 1.1.1 (b) | Improvement of compliance monitoring and facilitation of private sector contribution to forest resources management and rehabilitation of damaged ecosystems | 1 | 5 | 1 | 1. Lack of monitoring and inspection due to budget limitation; 2. Improper manage of royalty, tax and fees; 3. Funding to support on tree grown trees | 1. Support fund for regular monitoring and inspection; 2. Technical assistance and injection forestry fund; |
| 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.) | 1 | 5 | 1 | 1. Monitoring & evaluation system after rehabilitated and planted trees is inefficient; 2. Unclear scheme/ technic for natural regeneration; | 1. Provide the incentive for all stakeholder who restored and rehabilitated forest; 2. Incentive for small holder plantation registration and marketing and; 3. Provide alternative livelihood support activities for trees planted farmers |
| 1.2.1 (a) | Establishment and monitoring of Fish Conservation Zones (that include local/ indigenous species). | 1 | 6 | 3 | 1. Several Fish conservation zone is established, but poor in management and monitoring; 2. Fish resources information is limited, especially endangered and native species and its habitat and populations; 3. Unclear of fish zoning between conservation & production zones | 1. Optimize system on establishing fish conservation zone; 2. Develop endangered/native species database system and including it ecological system classifications |
| 1.2.1 (b) | Establishment and monitoring of watershed programs that incorporate systems wide support of fish breeding sites. | 1 | 6 | 3 | 1. Good fish breeding system is limited; 2. Fish breeding technic of native and endangered species is limited; 3. Supporting from investors (hydro power dam developers) on fish conservation and monitoring is limited; | 1. Support for improving fish breeding facilities, equipment, monitoring tools, guidelines, field site inventory; 2. Capacity building and testing breeding technic for the key native and endangered species; 3. Train local staffs (including private farms) in several topics on fish breeding, |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l target | Obstacles | Capacity Needs |
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| | | | | | 4. High threat of destroying of fish habitat and ecosystem, especially from pesticide, land and forest degradation, change of water quality, change of landscape, and hunting | monitoring and its ecosystem assessment, fish disease preventions, 4. More research on native and endangered species; |
| 1.2.2 (b) | Development of implementing guidelines for the Fishery Law that consider biodiversity concerns | 1 | 6 | 4 | Guideline, media for law and regulation enforcement is limited. | 1. Awareness raising for local community on sustainable fish cultivation technical; 2. Supporting to develop guideline and tools for law enforcement, monitoring; and 3. train local staff in several topics related to threat, conservation, cultivation and fish ecosystem assessment, breeding technic, extension system, etc |
| 1.2.2 (c) | Facilitation of cooperative agreements with neighboring countries to more effectively conserves and manages fish resources in Mekong and other rivers | 1 | 6 | 4 | | |
| 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 change | 1 | 7 | 6 | 1. Imbalancing between the provinces that have many projects supported and provinces which lacking project supported; 2. Funding and resources allocation from the government is limited; 3. Local community knowledge on climate change is poor | 1. Need capacity building and funding to support the local government and the community in coping with the change of the climate; 2. More support to the vulnerability district to adapt to the high risk of climate change and disaster; |
| 1.3.1 (c) | Market studies and value chain analysis establishing commercial | 1 | 7 | 6 | 1. Unclear selection of species to promote and breeding; | 1. Need to study potential species that could be used for commercial proposed; |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target | Obstacles | Capacity Needs |
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| | viability of and realistic options for local varieties and breeds. | | | | 2. Processing and producing skills and knowledge is limited; 3. Packing of finished products is limited; 4. Ability to access to the international market is poor; | 2. Need to train staffs and producers on product design, quality assurance and control, packing and distribution to the market; 3. Support the producers to produce different products and open to both domestic and international market |
| 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 | 1 | 7 | 7 | 1. Only provincial that supporting by the projects apply PLUP; 2. Monitoring, extension and evaluation after planning is limited; 3. Technical support mainly based on international organization and donors; 4. Insufficient budget to expand the program for whole country; | 1. Both technical assistance and funding for many provinces which has not applied PLUP; 2. Need to train and support the local community to develop and implement the plan; |
| 1.3.3 (a) | Promote IPM (Integrated Pest Management) | 1 | 7 | 8 | 1. Skills and knowledge staffs and experts to control the outbreak species such as Locus sp; Armyworms is limited 2. Tool and equipment to prevent and eliminate the pest is limited; 3. Research on pest, skills to assess the impact is limited; 4. Laboratory to test is insufficient | 1. Funding and technical support for large scale pest outbreak; 2. Study on pest risk and impact; 3. Enhancing the ecology to prevent pest outbreak and invasive species |
| 1.3.3 (b) | Regulate the use of agro-chemicals | 1 | 7 | 8 | 1. Law and regulation enforcing is weak; 2. Improper of controlling of agro-chemical importing; 3. Community understanding of | 1. Strictly bordered check points and control of chemical importing; 2. Raising awareness on chemical use especially applying of safety protocol; 3. Support the community to produce and |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target | Obstacles | Capacity Needs |
|-----------|--|----------------|-----|--------------|--|---|
| | | | | | chemical impact and usage technic is very low; 4. The alternative (boi-chemical) is high price and production is limited; | use of bio-chemical; and 4. Enhancing natural ecosystem for the community farmland |
| 1.4.1 (b) | Provision of training and advice on urban and industrial waste pollution prevention measures, especially on waterways /wetlands | 1 | 8 | 9 | Insufficient budget; skill staff, numbers of regulations, law enforcement is limited. Service providers is limited and low standard, public participation is limited; | 1. Regular monitoring & reporting; 2. Provide training program for central & local staffs; 3. Implement & compliance with international agreement; 4. More awareness raising; 5. More on regulation and law enforcement |
| 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 | 1 | 8 | 10 | 1. systematic of data and information is scattering; 2. Insufficient budget; skill staff, numbers of regulations, law enforcement is limited. Service providers is limited and low standard, public participation is limited; | 1) Provide training for central and local staffs; 2) more funding & technical support; 3. Establishing data clearing house, and connect to all district |
| 1.5.1 (b) | Assessment and program development for conserving Dry Dipterocarp Forests | 1 | 5 | 11 | 1. DD forest assessment, even it located inside the PA, PFAs is limited; 2. Several DD forests was converted to other land use types; 3. Have no systematic plan and mapping of DD forest specifically; except the area that supporting by a project | 1. Zoning of DD forest that could be establish as a new conservation zone; 2. Develop management plan for DD forest which located in/outside state forest areas |
| 1.5.2 | Development of geographic networks of at least 69 village | 1 | 7 | 12 | 1. The local community capacity and ability is limited; | 1. Continue support on capacity building on BD assessment, monitoring system, |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target | Obstacles | Capacity Needs |
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| | forestry sites as part of BD corridor protection and sustainable use system. | | | | 2. Risk of ineffective of implementation on sustainable system upon the project ended | forest rehabilitation and livelihood improvements; |
| 1.5.5 (a) | Identify, characterize and prioritize the invasive alien species | 1 | 9 | 15 | 1. Lack of research on species, lack of scientific identification and nomenclature of several species; 2. Insufficient funding and national experts for research; 3. Law enforcement is limited | 1. Provide short term training and long term on specific fields to related staff under MAF,MONRE (from central to local level); 2. Provide training on report tool and data entry for red listing; 3. Support of law enforcement |
| | | | | | | |
| Strategic Goal C: Safeguarding | | | | | | |
| 1.1.1 (d) | Protection program for valuable forest ecosystems such as: Hing home forests (<i>Fokinia chinensis</i>), Long Leng forests (<i>Cunninghamia obutusa</i>), Mai Dou Lai forests (<i>Pterocarpus/Dalbergia</i>) and Mai Khangoung forests (<i>Dalbergia cochinchinensis</i>). | 1 | 11 | 1 | 1. Remaining prohibited species is under the threat; 2. Monitoring & assessment system is weak; 3. Ecological information that remaining in the natural forest is limited | 1. Assessing these tree ecosystems; 2. Develop the information system of natural trees awareness raising on law & regulation, strictly on monitoring and inspection |
| 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 | 1 | 13 | 6 | 1. Insufficient budget, skill staffs to assess and protect native varieties habitat is limited; 2. Reproductive technic for commercial proposed is limited; 3. Regulations, and law enforcement is limited," | 1. Need to train staffs (both central & local government on several topic such as assessment technic, genetic preservation, reproduction; 2. Establishing mechanism for community extension; 3. Awareness raising, and develop more regulations and enforcement |
| 1.5.1 (c) | PA Staff capacity Strengthening within 70% of Protected Areas | 1 | 11 | 11 | 1. Capacity of the staff of PA management units is limited; | 1. Update training manuals, handbooks and provide the capacity for all stakeholders |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target | Obstacles | Capacity Needs |
|-----------|---|----------------|-----|--------------|---|--|
| | | | | | | including local community in several topic; 2. Staffs can continue their study at the university; |
| 1.5.3 (a) | Updating of the RED list | 1 | 12 | 13 | 1. Research on species is limited, scientific identification and nomenclature of several species is very limited; 2. Insufficient funding and national experts for research; | 1. Provide short term training and long term on specific fields to related staff under MAF,MONRE (from central to local level); 2. Provide training on report tool and data entry for red listing |
| 1.5.3 (b) | Capacity Development for law enforcement in support of national commitments to CITES. | 1 | 12 | 13 | 1. Detail information of wildlife species is limited such as Tiger DNA, numbers of other wild animal recorded unavailable; 2. Staffs ability and capacity to be enforcement team is limited; | 1. research and restate, matching of wildlife species and categories of Lao Wildlife list and CITES list; 2. Establishing join enforcement and study team with combine the government staff with WSC, WWF, IUCN/SSC, WAZA, SEAZA and other organizations; |
| 1.5.3 (c) | Implementation of priority protection measures for seed sources of indigenous tree species seed resources. | 1 | 13 | 13 | 1. Many tree seed network and mother tree s were decreased; 2. Mother tree network monitoring and assessment is limited; | 1. Strictly enforcing the law and regulation, and regular monitoring of mother tree and its network; 2. Raising awareness on how to preserve the mother trees of high commercial value and prohibit species |
| 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 | 1 | 13 | 13 | 1. Number of qualified staff is limited, complex procurement process causing delay in implementation; 2. Habitat zoning and classification is weak; 3. Insufficient transportation and | 1. Need Land use classification skill for habitat zoning; 2. Promote ecotourism and PES to support key species conservations; 3. Assess the status and setup monitoring system for each key species; |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target | Obstacles | Capacity Needs |
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| | endangered flora. | | | | fieldwork equipment. | |
| 1.5.4 (a) | Prepare assessment, Conservation and Utilization program for medicinal plants including seed conservation. | 1 | 13 | 14 | 1. Boundary unclear, insufficient budget, lack of skill staffs to assess and identify the species; 2. Guideline of for user and processing is limited; | 1. Support on demarcation on existing medicinal plants gardens; 2. Train technical staffs for inventory, assessment and species identifications; 3. More funding and technical support; |
| 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). | 1 | 13 | 15 | 1. Numbers of skilled staffs for capacity building, raising awareness, carry out the field assessment, inspections and monitoring is limited; 2. Laboratory, equipment, chemical for testing and verification is limited; 3. Data and information system and recording including sharing is limited; 4. National expert to conduct risk assessment, identifying and verification of GMOs, etc is limited | 1. Provide the capacity building for both central and provincial staff on risk assessments, inspections, monitoring; 2. Improve the laboratory, install more advance tools/ equipment to detect/ test on biosafety; 3. Improve database and information system and sharing with public; 4. Develop regulations, information sharing medias tool. [Estimate budget is 1 million USD for 3 years] |
| 5.1.1 (b) | Piloting of REDD+ in areas of at least 8 biodiversity rich forest sites. | 5 | 11 | 27 | 1. Most of the REDD+ project is in readiness phase; the implementation phase has not started yet; 2. Program is relying on donor support | 1. Develop detail action plan based on the new REDD+ strategy |
| Strategic Goal D: Biodiversity benefits | | | | | | |
| 1.1.2 (c) | Review rural employment generation experience of NRM based enterprises and adoption of | 1 | 14 | 2 | 1. Insufficient information of labor; 2. Skill labor is limited; and 3. NRM enterprises is imported | 1. Need assess the trend of labor including migration of labor from rural to the city; 2. Set up the labor information and |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target | Obstacles | Capacity Needs |
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| | enhancement measures | | | | labor from neighboring countries | database system; 3. Improving registration system including migration labor recording; and 4. Develop a standard for skill labor, working labor, and includes it into education curriculums. |
| 1.1.2 (d) | Strengthening of organizations dealing with shifting cultivation stabilization, and village forestry allowing for communities to sell wood of production forest. | 1 | 14 | 2 | 1. Village use forest (VUF) is not applicable to enter commercial process; 2. Limitation of alternative livelihood support; 3. Insufficient budget to stabilize shifting cultivation; 4. Local skill staff to support the community especially at the provincial and district levels is limited. | 1. Need to improve the supporting system for the local community such as infrastructure investment, alternative livelihood supporting, participatory land use planning, incentive for forest management & conservation, and restoration; 2. Establish VUF information system, raising awareness on timber selling process especially timber supply chain, control and verification of the VUF; 3. Forestry law may have to revise and allow community to enter commercial wood selling process |
| 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 | 1 | 14 | 5 | 1. Cross sector, central and local authorities coordinating is poor; 2. Some committee member knowledge and skills are limited, lacking IWRM background and have several tasks; 3. information and knowledge exchange are limited | 1. Strengthening committee members in several topic related to sustainable river basin management and IWRM; 2. Exchange knowledge & skills with other country and including with each river basin committee |
| 1.2.3 (b) | Develop and implement IWRM | 1 | 14 | 5 | 1. Imbalancing of resources | 1. Strengthening planner for each river |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target | Obstacles | Capacity Needs |
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| | 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 | | | | allocation for each river basin implementation, the river basin which has investment projects may take advantage in access to the fund; 2. Coordination mechanism among river basin is limited; 3. Fund allocate by the government for water and natural resource management in the river basin is very limited; 4. Many river basins have no management plan and lacking information of water catchment and its resources | basin; 2. River basin assessment and sustainable planning (need both fund and technical support) adapt to the change of climate and disaster |
| 1.2.3 (c) | Mainstreaming IWRM Plans into ISPs and to ensure well-coordinated and sustainable water resources protection, management and development | 1 | 14 | 5 | 1. Applying IWRM information system is limited; 2. The coordination among cross sector is poor; 3. Funding allocated by the government is limited; 4. Skill human resource is also limited especially at the provincial and district level. | 1. Enhancing coordination between management units and private sector/ investors and community; 2. |
| 1.4.1 (a) | Facilitation of urban environment planning in selected provincial capitals to protect biodiversity rich ecosystems that serve urban areas. | 1 | 14 | 9 | 1. Public participatory planning and implementation is limited; 2. Detailed urban planning, urban park, transportation network is limited; 3. Improperly of land conversion, building construction, drainage | 1. Develop the detail urban planning, and strictly implement it according to the plan; 2. Promote clean & green city slogan |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target | Obstacles | Capacity Needs |
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| | | | | | system, and pollution control; 4. Urban park management and zoning is improper | |
| 1.5.4 (b) | Establish at least three botanical gardens in at least three provinces | 1 | 14 | 14 | 1. Unclear the roles and significant of botanical garden; 2 Guideline for botanical establishing, monitoring and controlling system is very limited | 1. Train local staffs on botanical planning and management system; 2. Setting up the botanical standard for the national, provincial levels; 3. Improve the policy and incentive scheme for concerned stakeholders in supporting botanical gardens; |
| 3.1.2 | Policy and Program formulation and strengthening of ABS as stipulated under the Nagoya Protocol with participation from wide range of stakeholders | 3 | 16 | 21 | 1. Information of ABS to the public is limited; 2. Many commercial enterprises are not strictly following the ABS system; 3. Budget, expert and tools for implementation is insufficient; 4. Capacity building for relevant stakeholders is limited. | 1. Provide funding, train staffs for planning and implementation; 2. Simplify the regulation and easy to understand by many stakeholders; 3. Promote the join implementation mechanism for concerned stakeholders; 4. Improve the cross-sector coordination technic; [estimated budget USD 1.0 million per year] |
| 5.1.1 (c) | Piloting of PES areas in at least 3 sites to support hydropower operations. | 5 | 14 | 27 | 1. Many relevant organization are not engaged, only few pilot testing in hydro power project | 1. Organise consultation meeting and exchange among sectors (MAF, MONRE, MPI, ...) |
| Strategic Goal E: Implementation | | | | | | |
| 1.5.1 (a) | Participatory preparation and improvement of the PA management plans and protection forest management and corridor management plans | 1 | 19 | 11 | 1. PA management plan for the national and all Pas is limited; 2. Technical staffs and the contents of PA management plan is unrealistic and poor mechanism to | 1. Improve the national legal framework for NP management plan; 2. Update the guideline for PA management plan; 3. Strengthening the capacity of the PA |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target | Obstacles | Capacity Needs |
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| | | | | | implement; 3. stakeholders' participation in planning process is limited; 4. PA management plan is not consistence with others plans such as NSEDP; 5. Boundary demarcation and mark has not been verified; official data is unclear; 6. Insufficient fund allocated from the government | staffs; 4. Encourage all concerned stakeholders' participation in planning stage |
| 3.1.1 | Formulation of guidelines under the Intellectual property rights law to support protection of traditional knowledge in biodiversity conservation and use. | 3 | 18 | 20 | 1. Many of the regulation, brochure, booklet, other medias are developed, but lack of disseminate to the public; 2. Capacity of the provincial and district staff to promote and use the guideline is limited; | 1. Promote traditional use of bio resources of the local community; 2. Disseminate all relevant guidelines and medias; 3. Promote the enterprise to register their product based on IP procedure |
| 3.1.3 (a) | Establish knowledge base of Traditional Knowledge on biodiversity conservation and sustainable use | 3 | 18 | 22 | 1. Cross sector coordinating is imbalanced, the supporting from central level is limited; 2. Knowledge based platform is developed, but based on the donor support; 3. Many key species of bio resources information is limited | 1. Develop diversify platform to the public; 2. Organise the consultation meeting and set up the coordinator team to promote knowledge at the community levels; 3. More funding support to research and develop more knowledge-based information |
| 3.1.3 (b) | Developed an updated national research and development program to support biodiversity users in agriculture, medicine, tourism, | 3 | 19 | 22 | 1. Lack of incentives for researchers to conduct the research; 2. The information sharing platform among researchers and research | 1. Allocate fund for researchers to study and share the result to the public; 2. Establish information sharing platform and awards for all researchers, academic |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l target | Obstacles | Capacity Needs |
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| | among others | | | | institute is weak; 3. Limited of investment from the government for this area, many research activities are dependent on international fund project. | institute and relevant organizations; 3. Update research theme and set the priority based on geography location, and key species |
| 3.1.4 (a) | Collaboration with other conventions to capture, analyze, set up data bases and exchange experiences with other countries | 3 | 19 | 23 | 1. Synergy between convention during strategy and plan development is weak; 2. Imbalancing convention implementation, mostly separated implement; 3. Sharing the experienced and lesson learnt on each convention implementation is limited | 1. Develop a clear policy and regulation for convention implementation action plans; 2. Create a platform for sharing the information of convention implementation |
| 3.1.4 (b) | Promotion of trans-boundary cooperation for biodiversity monitoring and action | 3 | 19 | 23 | 1. Insufficient budget, and sometime poor coordinating among organizations; 2. Exchange program mostly conducted by the central and provincial level; | 1. Supporting funding and coordination mechanism setting, and organise exchange programmed; 2. Strengthening provincial and district level cooperation's; |
| 3.1.4 (c) | Participate in bilateral and multilateral cooperation on BD to help address high priority of NBSAP R&D needs. | 3 | 17 | 23 | 1. Participation from concerned sectors is limited | 1. Organise the sharing meeting & workshop |
| 3.1.4 (d) | A centralized and integrated database system (IT) for efficient and effective NRE data and information management and sharing is developed. | 3 | 19 | 23 | 1. Insufficient database, database system is very basic (lack of detail); 2. No clearing house for the national and provincial and district level | 1. Need expert to train and support the implementation staffs (central & local authorities); 2. Invest and develop database system to links central level to the provincial and district level; |

| Ref | Actions | Nat'l Strategy | ABT | Nat'l Target | Obstacles | Capacity Needs |
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| 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 | 3 | 19 | 23 | 1. Skills and experienced, knowledge in this areas are limited; 2. coordinating mechanism is limited, | 1. Several training program needed; 2. Set up the platform for relevant convention to coordinate and share the progress |
| 5.1.1 (a) | Identify funding sources and permanent fund to ensure the sufficient and consistent funding | 5 | 20 | 27 | | |
| 5.1.3 (a) | Assessment of internal sources of financing implementation of NBSAP including status of various funds created by law. | 5 | 20 | 29 | | |
| 5.1.3 (b) | Capacity development for resource mobilization. | 5 | 20 | 29 | | |