



Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

NBSAP Assessment

An Assessment of Lao PDR's National Biodiversity Strategy to 2020 and Action Plan to 2010



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Available from:
IUCN
Lao PDR Country Office
PO Box 4340
082/01 Fa Ngum Rd
Ban Wat Chan,
Vientiane, Lao PDR
Tel: +856-21-216401
Fax: +856-21-216127
Web: www.iucn.org/lao

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List of persons and organizations involved in NBSAP Assessment.

Acknowledgement

The government of Lao PDR acceded to the **International Convention on Biological Diversity** (also known as the Rio Convention) in 1996, and committed itself as part of its obligations as a signatory to develop a series of country biodiversity reports and national biodiversity strategies and action plans.

From 2000-2004, Laos produced the first Biodiversity Country Report looking ahead to 2020, and Action Plan through 2010, which were collaborative initiative between key ministries, namely the Ministry of Agriculture and Forestry (MAF) and the Science, Technology and Environment Agency (STEA-former Ministry), receiving financial and technical support from UNDP and DANIDA. Once the documents were approved by the Lao Government, MAF published them and distributed them widely to the public. During the 5-6 year span of the NBSAP implementation many achievements were made.

Since 2009, the Ministry of Agriculture and Forestry worked with the Department of Forestry (DoF) and the Division of Forest Resources Conservation (DFRC) to implement Outcome 1, **"The Improved capacity for effective governance of the International Convention on Biological Diversity in Lao PDR"**, of The Agrobiodiversity Initiative (TABI) supported by the Swiss Agency for Development and Cooperation (SDC).

With TABI support, the Department of Forest Resources Management (DFRM, formerly the DFRC), under the Ministry of Natural Resources and Environment (MoNRE), along with other stakeholders, worked closely to develop the fourth National Report which was submitted to the CBD Secretariat in 2010 just before COP10 in Nagoya. During the process of formulating the second NBSAP, the assessment of the implementation of the first NBSAP was deemed critical, as outcomes and feedbacks were necessary to the development of the new NBSAP. The DFRM, together with NBSAP sectoral working groups, conducted the review of the first NBSAP.

The completion of the first NBSAP implementation assessment (this book) could not have come about without the valuable support of the donor (SDC), the advisory committee, and contribution from the technical team, sectoral working groups, International and INGO organizations. On behalf of CBD National Focal Point, I would like to thank you all for contributing your time and effort to developing this report. I would especially like to thank the team from the International Union for Conservation of Nature (IUCN Lao PDR), our strategic working partners, for all their support.



National CBD Focal Point
Khamphanh Nanthavong

Acknowledgement

The government of Lao PDR acceded to the **International Convention on Biological Diversity** (also known as the Rio Convention) in 1996, and committed itself as part of its obligations as a signatory to develop series of country biodiversity reports and national biodiversity strategies and action plans.

From 2000-2004, Laos received financial as well as technical support from UNDP and DANIDA to produce the first Biodiversity Country Report, followed by the first National Biodiversity Strategy looking ahead to 2020, and Action Plan to 2010. The two main documents were the result of excellent collaboration between key ministries, namely the Ministry of Agriculture and Forestry (MAF), which took the lead on the National Country Report, and the Science, Technology and Environment Agency (STEA-former Ministry), which was in charge of developing the National Biodiversity Strategy and Action Plan.

Since the documents were approved by the Lao Government, the organization in charge published them and distributed them widely to the public. During the 5-6 year span of the NBSAP implementation many achievements were made.

In 2009, the MAF established a new project supported by the Swiss Development and Cooperation called The Agrobiodiversity Initiative. The Initiative focuses on upland areas in the northern part of Laos. Among other project goals, Outcome #1, **“The improved Capacity for effective governance of the International Convention on Biological Diversity in Lao PDR,”** was designed specifically for CBD work which fell under the responsibility of the former Division of Forest Resources Conservation (DFRC), the Department of Forest Resources Management (DFRM) (formerly the Department of Forestry and the MAF, respectively) , and the Ministry of Natural Resources and Environment.

Under TABI support, the DFRM along with other stakeholders worked hard to develop the fourth National Report, and the report has already been submitted to the CBD Secretariat in 2010 just before COP10 in Nagoya. The DFRM and other stakeholders later started to assess implementation of the first NBSAP and develop the second NBSAP.

The completion of the first NBSAP implementation assessment (this book) could not have happened without the valuable support from the donor (SDC), the advisory committee, and hard work by the technical team, sectoral working groups, International and INGO organizations. On behalf of CBD National Focal Point, I would like to thank you all for contributing your time and effort to developing this report. I would especially like to thank the World Conservation Union (IUCN Lao PDR), who are our strategic working partners, for their all support.

National CBD Focal Point

List of Acronyms and Abbreviations:

ABC	Asian for Biodiversity Center
ABS	Access and Benefit Sharing
ACIAR	Australian Center for International Agricultural Research
ADB	Asian Development Bank
ADP	Areas Development Programme
AFD	French Development Agency
AFTA	ASEAN Free Trade Area
ARCBC	ASEAN Regional Center for Biodiversity Conservation
ASEAN	Association of South East Asian Nations
ASEAN-WEN	ASEAN- Wildlife Enforcement Network
ASOEN	Asian Senior Official on Environment
BCH	Biosafety Clearing House
BRAHM	Botanical Research And Herbarium Management System
CATCH UP	Comprehensive Analysis of Trajectories of Change in the Upland
CBD	Convention on Biological Diversity
CEPF	Critical Ecosystem Partnership Fund
CLIPAD	Climate Protection through Avoided Deforestation
CGRFA	Commission on Genetic Resources for Food and Agriculture
CEP-BCI	Core Environment Program and Biodiversity Conservation Corridors
CIAT	International Center for Tropical Agriculture
CIRAD	French Research Center for Agriculture and Development
CITES	Convention on International Trade in Endanger Species of wild Fauna and Flora
COP10	Conference of Parties 10
DAFO	District Agriculture and Forest Office
DFRC	Division of Forest Resources and Conservation
DFRM	Division of Forest Resources Management
DLF	Department of Livestock and Fishery
DoF	Department of Forest
DoFI	Department of Forest Inspection
DoA	Debasement of Agriculture
DWREO	District Water Resource and Environmental Office
EIA	Environmental Impact Assessment
ESIA	Environmental Society Impact Assessment
EU	European Union
FoS	Faculty of Sciences
FAO	Food and Agriculture Organization
FSIP 2020	Forest Strategy Implementation 2020
GEF	Global Environmental Fund
GIZ	German Society for International Cooperation
GMOs	Genetically Modified Organism
GoL	Government of Laos
GMS	Greater Mekong Sub-region
Helvetas	Swiss Intercooperation
ICAD	Integrated Conservation And Development
IDRC	International Development Research Center

ICRAF	International Center for Research in Agroforestry
IFAD	International Fund for Agriculture Development
INGOs	International Non-Government Organizations
IRD	Institute of Research for Development
IRRI	International Rice Research Institute
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
LARReC	Living Aquatic Resource Research Center
LLS	Livelihood and Landscape project
LMOs	Living Modified Organisms
LNTA	Lao National Tourism Administration
LUFSSIP	Lao upland Food Security Project
MAF	Ministry of Agriculture and Forestry
MEAs	Multilateral Environmental Agreements
MEM	Ministry of Energy and Mining
MIC	Ministry of Industrial and Commerce
MPT	Ministry of Public work and Transportation
MRC	Mekong River Commission
MPI	Ministry of Planning and Investment
NAFES	National Agriculture and Forest Extension and Services
NAFRI	National Agriculture and Forest Institute
NAST	National Authority for Sciences and Technology
NBF	National Biosafety Framework
NBSAP	National Biodiversity Strategy and Action Plan
NBCAs	National Biodiversity Conservation Areas
NCSA-FU	Strengthening Capacity Self Need Assessment – Follow Up
NERI	National Economic Research Institution
NIAS	National Institute of Agro biological Sciences
NISM-GPA	National Implementation Sharing Mechanism for Monitoring of Global Plan and Action
NNBDSP	Nam Ngum River Basin Development Sector Project
NPAs	National Protected Areas
NTFPs	Non Timber Forest Products
NUoL	National University of Laos
PAFO	Provincial Agriculture and Forest Office
PADETC	Participatory Development Training Center
PES	Payment for Environmental Services
PEI	Poverty Environmental Initiative
PGRFA	Plant Genetic Resources of Food and Agriculture
PM	Prime Minister
REDD	Reducing Emissions from Deforestation and Forest Degradation
SDC	Swiss Agency for Development and Cooperation
SHDP	Smallholders Development Project
SAREC	Swedish Agency for Research and Education Cooperation
SEAFDEC	South East Asian Fisheries Development Center
SEANAPE	Southeast Asian Network for Agroforestry Education

SEARC	Southeast Asian Regional Center for Graduate Study and Research in Agriculture
SIDA	Swedish International Development Agency
SNV	Netherlands Development Organization
STEA	Science, Technology and Environment Agency
STRI	Sciences and Technology Research Institute
SUFORD	Sustainable Forest and Rural Development
TABI	The Agro Biodiversity Initiative
TRMI	Traditional Research of Medical Institute
URDP	Upland Research Development Program
UNDP	United Nations Development Programme
UNCCD	United Nations Convention to Combat Desertification
UNEP	United Nations Environmental Programme
UNEP/UNDP-PEI	UN Environmental Programme/UN Development Program–Poverty Environment Initiative
UNESCO	United Nations Educational, Sciences and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
WB	Work Bank
WCS	Wildlife Conservation Society
WREA	Water Resource and Environmental Agency
WWF	World Wide Fund for Nature

I. Executive Summary

In 1996, the Government of Lao PDR acceded to United Nation International Convention on Biological Diversity (CBD). In meeting the requirements of the convention, in 2004, the government of Lao PDR formulated and approved its first National Biodiversity Strategy and Action Plan (NBSAP). This NBSAP laid out an action plan to 2010 and strategy to 2020. Given that the Lao PDR is in the process of drafting a 2nd NBSAP that is updated for the current context and seeks to respond to lessons learned from drafting and implementation of the 1st NBSAP, an assessment of the 1st NBSAP document and implementation progress was needed.

Beginning in June 2011, IUCN and the Department of Forest Resource Conservation undertook this assessment through soliciting information on CBD relevant progress from a wide range of government and non-government stakeholders. This report is a compilation of the responses received.

This assessment revealed that key progress under the first NBSAP fell in the following areas:

- 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;
- and, stricter EIA/ESIA laws.

Key areas 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.

Assessment of the 1st NBSAP document itself indicated important shortcoming. The 1st NBSAP does not provide any indicators or assign specific government departments and institutions to be responsible for implementing each action and monitoring progress. Nor does it outline a monitoring plan. It could likely have been more successful and directed donor funds towards implementation if it has also identified priority targets out of its long list of targets and actions and provided estimate budgets for work towards those targets.

Clearly, the 2nd NBSAP should based off of these lessons and findings. As such, this report recommends that the 2nd NBSAP identify priority actions, potential funding sources, estimate budgets, success indicators and institution responsible for each target. All targets should be measurable. Given the recent change in ministerial structure, the 2nd NBSAP should first and foremost focus on revising and improving the CBD institutional structure. A new structure

should focus on cross sector planning and strategies and call for additional government funds to support this work.

In terms of biodiversity conservation priority areas under the 2nd NBSAP, this report proposes a focus on the following areas:

- Program of Work on Protected Areas (PoWPA) and NPA management plans;
- Strategic plans for species conservation;
- Wetlands conservation;
- Access and Benefit Sharing;
- Land Use Planning incorporating sustainability criteria and including a particular focus on agro-biodiversity.

II. Introduction

In 1996, the Government of Lao PDR acceded to United Nation International Convention on Biological Diversity (CBD). Accession to the CBD signaled a commitment by the country to developing and implementing a National Biodiversity Strategy (to be updated every 10 years) and Action Plan (to be updated every 5 years) (known as NBSAP). Around the world, NBSAPs are expected to respond to global Strategic Plans for Biodiversity that is formulated at the CBD Conferences of Parties. As resources for CBD implementation were quite limited at the time of accession, Lao PDR's 1st NBSAP was not developed until 2004. The first Lao NBSAP includes a National Biodiversity Strategy to 2020 and Action Plan to 2010. At the time of publishing this assessment report, the Government of Laos (GoL) was in the process of formulating its 2nd NBSAP (with a revised strategy to 2020 and action plan to 2015).

As part of formulation of the 2nd NBSAP, this assessment of the 1st NBSAP was undertaken to determine how successfully it was implemented it has been implemented to date. The expectation is that identifying weak points and strength in both formulation and implementation of the 1st NBSAP will allow for a more successful 2nd NBSAP. The focus of this report is the action plan, more so than the biodiversity strategy.

This assessment was carried out through a participatory approach. Six CBD government working groups made up of a diverse group of government departments and institutions doing work related to biodiversity conservation were set up to report back on their progress implementing the action plan since 2004. These working groups were as follows: 1) Research and Education, 2) Ministry of Agriculture and Forestry (MAF), 3) Water Resources and Environment Administration (WREA), 4) National Science and Technology Authority (NSTA), 5) Infrastructure (Public Works, Energy and Mining, and Industry and Commerce), and 6) Tourism. A complete list of the departments and institutions included in each of these working groups is provided in Annex 1. Each of these working groups completed a lengthy matrix detailing how their work since 2004 does or does not match the plan set by the 1st NBSAP. In addition to these government departments and institutions, key non-governmental and international organizations supporting work in biodiversity conservation were consulted (list of organizations also provided in annex 1). These non-government organizations also completed an abridged matrix.

As the compiled matrix with all responses is quite lengthy, it is not printed as an annex to this report. Interested persons may contact IUCN Lao PDR or the Department of Forest Resource Conservation (recently changed to the Department of Forest Resource Management) to request a copy of the matrix which has been printed separately. This report is a summary of key findings from the matrix. It is by no means comprehensive report on all biodiversity conservation activities.

Additional information was also derived from the "Fourth National Report to the Convention on Biological Diversity" submitted by the Government of Lao PDR in September 2010 in preparation for the CBD Conference of the Parties (COP 10). The "Fourth National Report to the Convention on Biological Diversity"¹ also reports on progress towards the Action Plan to 2010. This NBSAP assessment report is distinct in that information was collected through a much more participatory process, consulting many more stakeholders that the Fourth National

¹ Ministry of Agriculture and Forestry. "Fourth National Report to the Convention on Biological Diversity". September 2010. Vientiane, Lao PDR.

Report. Thus, this assessment represents a more comprehensive look at NBSAP implementation progress and provides recommendations for formulating the 2nd NBSAP.

Information for this NBSAP assessment report was gathered between July and December of 2011. It should be noted that during this time the government was undergoing ministerial reorganization. Because new ministry and department names and areas of responsibility were not entirely clear at the time of information collection and drafting of the report, the new names and new areas of responsibility are not applied in this assessment.

This report follows the format of the 1st NBSAP. The section below assesses progress under each program of work and recommended action outlined in the 1st NBSAP. The end of the report provides overall impressions of implementation.

III. Assessment of Progress made by programme and action:

a) Programme 1: Scientific Data and Biodiversity Knowledge Development

Obj 1. Identify important biological diversity components and improve the knowledge base.

Though no stakeholders reported doing any assessment of data gaps or research needs (relevant to action 1), NAFRI, DoF, and DLF each created 5 year research plans (2006-2010) as part of their 5 year strategy (relevant to action 2). NAFRI specified that their research plan included a focus on research related to indigenous knowledge and the current status biodiversity in Lao PDR. No stakeholders reported publishing strategic plans that identified specific components of biodiversity that are inadequately understood or urgently need to be known (relevant to actions 10 and 11).

There has undoubtedly been a very large number of biodiversity research projects carried out during the relevant time period. The main categories of research topics reported by stakeholders included the following: a) wildlife species, b) plant surveys, c) NTFP distribution and management, c) fuel wood, d) rice, e) fisheries and aquaculture, f) insects, g) micro-organisms (limited surveys), and h) medicinal plants. Many of these studies were funded by international organizations and/or carried out through collaboration between government and international organizations/universities (e.g. Hanoi Agricultural University, SIDA, Khon Kaen University, IUCN, FAO) (relevant to action 3). NAFRI and NUoL reported being involved in the largest number of research projects involving international collaboration during the relevant time period.

Some of this research had the aim of clarifying the current status and distribution of threatened species (relevant to action 5). For example, CEPF supported NUoL to assess the status of plants listed under the IUCN Red List. Stakeholder feedback indicates that surveys and research on specific wildlife species was mostly carried out in collaboration with international organizations. For example, IUCN conducted research on gibbon, saola and douc langur and WWF and WCS carried out research on tiger, green peafowl and Lao salamander. In terms of action 5, identify all relevant habitats and ecosystems in Lao PDR, the focus has been on forests and wetlands. Forests were last surveyed for the 2002-2003 National Forest Inventory (an updated Forest Inventory should be ready for approval and publication soon). Planning for

an updated National Wetland Inventory began during the project time period. However, progress has been limited to date. The fact that new NPAs were created and progress on accession to the Ramsar Convention on wetlands was made during the relevant time frame indicates that forests and wetlands have been identified as key ecosystems for conservation.

Considerable progress has been made in efforts to improve knowledge of taxonomy (relevant to action 6). For example, NAFRI published a book on 100 Commercial NTFPs in Lao PDR and another book on tree taxonomy as well as conducting an assessment of paddy field biodiversity. NUoL's establishment of bachelor's degrees in Botany and Zoology and a master's programme on biodiversity conservation certainly further efforts to understand the status of biodiversity and species taxonomy. Faculty of Sciences (FoS) NUoL worked on orchid surveying and developed orchid classification software.

There have been some efforts to focus taxonomy and distribution studies on lesser known terrestrial and aquatic plants, animals and micro organisms (relevant to action 7). For example, the Faculty of Forestry, NUoL did a study on reptile and amphibian biodiversity in Khammouane and Luang Nam Tha provinces. NUoL and NAFRI worked together on creating a list of rare plant species in select districts of Khammouane, Houa Phan and Vientiane provinces. NUoL also conducted surveys on fresh water algae, trees, beans, bamboo and orchids which resulted in discovering some new species. Other NUoL surveys include surveys on earthworm biodiversity and distribution of micro-organisms in soil and on ripe fruit.

Research projects have focused not only on distribution surveys and taxonomy, but also on conservation and sustainable use. There were many projects about sustainable use of NTFPs and fisheries (relevant to action 9).

While publication of books such as "100 Commercial NTFPs" is one example of efforts to collect and manage biodiversity data, there have also been some efforts to establish actual biodiversity databases (relevant to action 6). For example, NUoL developed a Fauna and Flora database using the Botanical Research And Herbarium Management System (BRAHM) method. In addition, NAFRI has developed its own biodiversity data center (NAFRI ICT unit) and has published some of this data on the website that it launched. However, Lao PDR still does not have one centralized biodiversity database that is kept updated. Within the TABI project, IUCN Lao PDR has been working on a scoping study to create a plan for the creation of centralized biodiversity database in the coming years. Under Outcome 5 of TABI, the Centre for Development and Environment (CDE), NAFRI, NLMA and WREA have worked together on developing infrastructure for storing ecological, economic, institutional and socio-cultural knowledge that can be used to implement agrobiodiversity conservation and land use planning activities under the TABI project. While this should contribute to a future national biodiversity database, it alone is not currently a comprehensive national biodiversity database. The creation of such a database should be a priority in the 2nd NBSAP.

There have been many efforts to improve the quality of research. NAFRI, NAST, DoA and NUoL/TRMI reported being involved in trainings that sought to upgrade research methodology to international standards (relevant to action 4). For example, NAFRI staff joined trainings on research design and data analysis at the Northern Agriculture and Forestry Research Center in Luang Prabang Province (under the Upland Research and Capacity Development Programme) and NAFRI reported participating in trainings on biodiversity assessments. Beyond trainings, DoF and NUoL reported that they have upgraded their research methodology through sending staff to study bachelor's, master's degrees and PhDs overseas. It is also likely safe to assume

that the many of the research projects that were carried out through international collaboration involved some form of capacity building on improving research methodology. NUoL also noted that they upgraded research through improving laboratory equipment.

Many research projects have benefited from the establishment of new research stations. Some of the new station established by NAFRI include: a rattan research station; a tree growth research station in Khammouane province. While NUoL has been searching for sites for new research stations, they have not yet established any new ones.

To summarize the level of achievement related to Objective 1, progress has definitely been made with researching distribution of a wide range of plant and animal species and their taxonomy, and increasing the capacity of relevant Lao government departments and NUoL to carry out high quality research. However, this research has been carried out in a somewhat haphazard manner since government research institutes and NUoL did not report laying out specific biodiversity research priorities (in terms of species or ecosystem priorities) in their 5 year plans. It appears that much of the research has been driven by donor interest.

Formulators of the 2nd NBSAP may see the need to require that government provide a more specific focus for biodiversity research. Given the current importance of climate change and climate adaptation, the 2nd NBSAP may recommend a specific focus on researching impacts of climate change on biodiversity, focusing on specific ecosystems. In addition, the 2nd NBSAP may set the goal that in the next 5 years a centralized biodiversity database be created and maintained.

Obj 2. Recognize and ensure the contribution of the ethno biological knowledge of Lao PDR's local and indigenous peoples in the conservation of biodiversity.

The conservation of ethno biological knowledge of Lao PDR's local and indigenous peoples has long been valued in Lao society.

The government promotes participation of local and indigenous people in research and management of their resources (relevant to action 1) through providing incentives for their involvement in forest management and setting up village revolving funds, and water supply infrastructure. In NPAs, for example, local communities are key in assisting NPA staff in planning, patrolling, preventing forest fires and conducting wildlife surveys.

Many projects carried out through collaboration between government and international organizations have relied heavily on participation of local people in natural resource management. For example, the Sustainable Forest Management and Rural Development Project (SUFFORD) supported set up of village forest committees, development of fish conservation areas and set up of sustainable NTFP harvesting systems. Under these activities, all management activities (including patrolling and monitoring) fall within the responsibility of district and local communities. Other examples of projects focused on local participation include the CATCH UP project (Comprehensive Analysis of Trajectories of Change in the Uplands) and SIDA's Upland Research Development Program (URDP) both focused on sustainable agriculture in upland areas. A more comprehensive list of projects is provided in the matrix.

Some of these projects have also focused on ensuring equitable benefit sharing from use of knowledge and practices (action 2). These projects include, but are not limited to the Prosperity Initiative Project (implemented by SNV, PAFO and DAFO) on bamboo marketing

and FAO's project on Enhancing Sustainable Forest Harvesting in Asia.

There have been a variety of projects focused on knowledge of practices of local people for nutritional and medical uses, as well as for wildlife and PA management (relevant to action 3). Examples include: the Traditional Medicine Research Institute (TMRI) surveys on use of medical plants and animal parts to treat humans and animals (reported by DoF)—one project focused specifically on traditional medicine of Hmong people in Xieng Khouang; DoA's work on applying local knowledge of utilization of wild plants to protect crops; and, NUoL's study on traditional consumption of wild plants in villages in Vang Vieng. In addition, DoA worked on a project recording local people's techniques for recycling agricultural waste after the harvest season (e.g. parts of the rice plant remaining after the rice grains are extracted). The PADETC (Participatory Development Training Center) worked on local knowledge in Vientiane Capital (Sangthong, Hatsaifong, Nasaithong, Pakngum and Saithany Districts); Vientiane Province (Feung and Sanakham Province); Sayaboury Province (Sayabury and Phieng District); Xiengkhouan Province (Kham district). Life Skill Development Association (LSDA) worked in Khammoaune Province (Nongbok district); Bolikhamxay province (Thaphabath and Bolikhan District); Savannakhet Province (Champhone and Xayphouthong District). The Green Club Activities Project/WWF Laos in Champasak province (Pathoumphone district) focuses on collecting and assessing local knowledge on building Lao traditional houses.

Unfortunately, the local and indigenous knowledge of Lao people has not been well documented and disseminated. One obstacle to this stems from the fact that responsibility for recording local knowledge has not been clearly delegated, nor has a procedure for documentation been developed.

Department of Livestock and Fisheries feels that they have also acknowledged the value of local knowledge by always holding consultation meetings with local people to understand their beliefs and disseminate their knowledge elsewhere (action 4). DoF reported that they have acknowledged the value of knowledge and practices of local and indigenous people in nature conservation, especially NPAs. However, logging and NTFP collection by outsiders is problem for many communities and inhibits their ability to benefit from their ethno biologically knowledge of their environment. In addition, concessions for investment projects that encroach on local forests and lands sometimes contradict local values of environmental conservation.

So, though various projects and government institutions have taken positive steps towards recording and respecting local knowledge, there are still many instances in Lao PDR where local people are unable to apply and benefit from their beliefs and practices related to biodiversity conservation. Moving forward responsibility and a procedure for documenting local knowledge should be clearly defined.

Obj: 3. Ensure the provision of knowledge, information and understanding of the nation's biodiversity which is required for its effective utilization, conservation and management.

Sharing information on National Biodiversity Conservation Areas (NBCAs or National Protected Areas, NPAs) at the regional and international levels is the responsibility of MAF, especially the DoF and DoFI (relevant to action 1). DoF and DoFI reported that Lao delegations participated in meetings and workshops in the region focused on CBD, Ramsar and CITES. Many of these meetings involved reporting on NBCAs in Laos and learning about NBCAs in different countries, primarily Vietnam, China, Thailand and Cambodia. DoF explained that in terms of information

sharing on a national level, DoF organizes one central level meeting each year in which all NPA staff participate so that they can share their progress.

Understanding of the nation's biodiversity has increased through efforts to compile lists of species names in Lao language that are useable in legal context (relevant to action 2). Major accomplishments during the 1st NBSAP include the following: economic tree species were compiled and identified by Department of Forestry; Lao Red List on aquatic animals and wildlife was updated by Department of Forestry; and, Rattan species were identified by NAFRI. As mentioned under objective 1 above, under Outcome 5 of TABI, the Centre for Development and Environment (CDE) has been working closely with NAFRI to store agrobiodiversity data in a way that maximizes its usability and on the ground application. Interpretative materials to help customs officials, MAF officials and the general public understand these species names have been prepared in the form of books, posters and guide books. DoF reported that there has been an emphasis on distributing these materials for customs officials (relevant to action 3). While certainly these efforts to produce interpretative materials and guidelines to key species represent progress, there is a lot more work to be done to apply Lao language legal names to species, especially flora.

There was no National Biodiversity Information Center established as recommended under action 4. However, there have been some smaller scale databases created by individual institutions to record biodiversity information relevant to the individual institutions work. For example, information relevant to plant and tree species is collected and stored through the National Forest Inventory; data and information relevant to protected areas is stored by DFRC; and, NAFRI has a database of information on agriculture and forestry in Laos, making it the largest biodiversity relevant database in the country. The Faculty of Science at NUoL has a substantial collection of small databases, including databases on: orchids, Mekong River biodiversity, and useful bacteria found in Lao PDR. In addition, FAO's project on Capacity Building and Regional Collaboration for Enhancing the Conservation and Sustainable Use of Plant Genetic Resources in Asia, has established a database for Plant Genetic Resources Food and Agriculture (PGRFA). The Asian Center for Biodiversity has provided DFRC with capacity development in terms of developing a clearing house mechanism for biodiversity data and encouraging information sharing.

In terms of efforts to report on the true status of biodiversity in the country, IUCN Lao PDR and DoF led key sectors to produce the 4th national Report on Status of Biodiversity in Laos (through the TABI project with funds from SDC) (relevant to action 5) in preparation for CBD COP 10. Though data to produce this report was incomplete and difficult to find, the report is the most comprehensive overview of the status of biodiversity available.

No stakeholders reporting developing mechanisms to improve research and coordination for safeguarding intellectual property rights (relevant to action 6). However, there have been efforts to disseminate biodiversity information (relevant to action 7). DoF reported that there were periodical articles on websites, newspaper, magazines, and including policy briefs on biodiversity in Laos, though more specific details about this were not provided. Under FAO's project on Capacity Building and Regional Collaboration for Enhancing the Conservation and Sustainable Use of Plant Genetic Resources in Asia, a website on Plant Genetic Resources Food and Agriculture (PGRFA) and conservation of those resources has been established.

Progress under Objective 3 includes exchanging information on NBCAs/NPAs, publishing guidelines on legal names for species, reporting on and disseminating information on the status

of biodiversity. However, during the 1st NBSAP there was no National Biodiversity Database created and no progress was reported on safeguarding intellectual property rights. In the 2nd NBSAP, stakeholders may wish to lay out more specific objectives and actions related to information exchange on NBCAs. In addition, the 2nd NBSAP should again recommend creation of a National Biodiversity Information Center, but perhaps provide more detailed recommendations on how to form it. The issue of safeguard intellectual property rights should be reassessed to determine whether or not it should be a priority action. If it is determined that it should remain a priority, more detail should be provided in the 2nd NBSAP on how to address it. In addition, more work should be done to assign legal terms to species, especially flora.

b) Programme 2: Biodiversity Management

Objective 1: Establish and manage a comprehensive and representative system of PAs that covers the nation's biodiversity.

In terms of a review of the existing NPA network and management system (relevant to action 1), in 2008, DoF hosted a meeting on reviewing and revising the NPA system. The meeting included ensuring that Lao NPA categories correspond to IUCN NBCA categories and revising Forestry Strategy to 2020 and Action Plan to 2015 in a participatory manner. This work was supported by Sida and JICA under the project Forest Strategy Implementation 2020 (FSIP 2020) with IUCN supporting application of IUCN's NPA classification system and piloting activities in Phou Khao Khui NPA. In 2008, a provincial protected area in Bokeo province named Nam Kan was upgraded to a National Protected Area. In 2010, a provincial protected area in Xieng Khoung province called Phou Puong Chong-Phou Saboth and a provincial protected area in Savannakhet called Lavin-Laveune were also upgraded to NPAs, making the total number of NPA now 24. At the moment, there is another potential provincial PA under consideration for an upgrade to NPA, namely: Phou Hee Phee, covering 87,350 hectares in Oudomxay province.

Other progress on NPA management during the 1st NBSAP timeframe includes the development and approval of master plans for four NPAs, namely Phou Khao Khouay, Hin Nam Nor, Nam Kading and Na Kai-Nam **Theun** NPAs. Of the 24 NPAs, only one has completed its boundary demarcation. In 2008, IUCN and the Department of Forestry Inspection (DoFI) signed an MoU under which IUCN provided DoFI with capacity development support in patrolling NPAs. This work focused on Xe Pian and Doung Hua Sao NPAs and included participation in Lao-Chinese inter-ministerial dialogue on Forest Law Enforcement and Governance (FLEG).

In terms of identifying and determining ecosystem zoning (relevant to action 2). Department of Forestry reported working closely on zoning NPAs (strict protection zone, managed use zone and buffer zone). These forest ecosystems and forest types are defined in Forestry Law, Issued No: 06/ NA, dated: 24th December, 2007. Passage of this law enabled designation of 49 areas as protection forests. Some of these protection forests will be managed under the SUFORD project. Despite forest type zoning, boundary demarcation (done with the help of local people) has only been completed in 1 out of 24 NPAs. Other efforts to work on ecosystem zoning include WREA's work on classifying river systems in the country, with a focus on watershed systems and watershed management. A Watershed Management Committee was assigned at

all levels. In 2010, two wetland sites were selected as Ramsar sites: Beung Kiat Ngong wetlands in Champassak province and and Xe Champhone wetland in Savannakhet province.

Two NPA corridors have been identified: Nakai-NamTheun-Hin Nam Nor and Phou Hin Poun-Nakai-Nam Theun (relevant to action 3). These NPA corridor zones were approved by Prime Minister Decree No: 193/PM, dated 29th December, 2000. The management of these corridor zones falls under the responsibility of local authorities and communities. These corridors are funded by Nam Theun 2 Hydropower Development Project. The area between Dong Houa Sao and Xepian NPAs is under consideration as a future corridor. “Core Environment Program and Biodiversity Conservation Corridors Initiative” (CEP-BCI) which began implementation in 2006 (operated by WWF with funded by GMS/ADB during 2006-2009) is the main project working in the area. DoF reported that in the future the project will be undertaken by government with funds from the same donors (GMS and ADB). As part of planning for corridors, the BCI project carried out a study on sustainable financing of NPAs. These lessons will be applied to the corridors.

In sum, through the work of DoF and WREA, there has been progress towards establishing and managing a system of NBCAs that conserve the nation's biodiversity. DoF's main accomplishments include evaluating the NPA system, approving NPA management plans and creating new NPAs. This work has included detailed PA zoning. WREA's main accomplishment is designating two Ramsar sites. These accomplishments indicate that progress has been made in terms of designating and planning for NBCAs. Given that number of NBCAs in the country has increased during the course of the 1st NBSAP, the 2nd NBSAP should focus on improving implementation of NBCA management plans (relevant to objective 2) and allocating more resources towards NBCAs, more so than focusing on continuing to increase the number of NBCAs.

Objective: 2 improve the standards of management and protection of the nation's biodiversity.

Work on improving the institutional and legal basis for PA management falls mostly under DoF (relevant to action 1). Department of Forestry determined that in order to improve the Protected Areas management, MAF as well as DoF must make efforts to strengthen and build capacity of technical staffs from central to local level. DoF recommended that in the future, each National Protected Areas should aim to have at least 15 technical staff (staff numbers are currently more limited). In terms of improving the legal basis for PA management, DoF report that Forest Law is considered as the basis for forest management in Lao PDR. It was approved in 1996 and revised in 2007. DoF also reported that the state decree on protected areas was drafted in 2009 and is now being finalized.

In addition, DoF explained that there have been efforts to integrate NBCA management plans into cross sector planning at the provincial and districts levels (relevant to action 2) through involvement in yearly and every 5 year district and provincial planning processes.

DoF revealed that the state has very limited resources to set up sustainable financing mechanisms for NBCA management (relevant to actions 3 and 4). Though salaries of officials working in NPAs are paid by the central government, there are often very few resources available to fund those government staff to carry out management activities. Those NBCAs with sufficient funds are supported by projects or private investors. For instance, the Na Kai-Nam

Theun NBCA is supported by Nam Theun 2 Hydropower Company. The company pays for DSAs, field equipment, and field offices.

The limited government funds available to support NBCA management include the Forest Rehabilitation Fund. This fund is financed through fees charged to logging companies (around 3 billion kip per year). The government then puts the money in this fund so that they can be reallocated to individual NBCAs. In addition, NBCA can submit proposals to local authorities for a grant from the Environmental Protection Fund (established in 2007 through money from WB, ADB, and development projects) to request short term funding (1 year maximum) for conservation work. There is also some financial support derived from the tourism sectors. Tourists who visit NBCAs such as Nam Kan, Phou Khao Khouay, Phou Hin Poun and Xe Pian are required to pay a small fee. Additional funds come from international donors focused on NBCA management such as GIZ, ADB and GEF. Clearly, these sources of inconsistent funding do not constitute a sustainable financing mechanism.

In terms of ensuring that people living in and around the NBCAs participate actively in their management (relevant to action 5 and 7), DoF reported management activities include local people through awareness raising (e.g. organizing events for the public surrounding World Environment Day, National Tree Planting Day, Fish Release and Wildlife Day, International Day for Biodiversity) and establishing village funds and developing infrastructure is exchange for local people's participation in management. Local people participate through working on boundary demarcation and zoning activities, and patrolling.

In terms of generally strengthening the NBCAs management capacity (relevant to *action 6*), as stated above, DoF recommends that the focus be on improving human resources and explains that there have been efforts to organize trainings for central to district level staff. In 2008 – 2009, there were 2 trainings provided for NPA staff, mainly in six northern provinces. DoF also reported that staff have attended international and national training programmes over the last five years, though details of these training programmes were not provided. The provision of new equipments and incentives such as DSA, trainings and study opportunities for NPA staff also contribute to improving the management capacity of NBCAs staffs, particularly in Nam Kading, Na Kai- Nam Theun, Xe Pian, Phou Khao Khouay, Nam Et Phou Leui and Nam Ha NBCAs.

DoF reported that ICAD objectives have been part of the government's NBCA management practices since 1995 (relevant to action 9). DoF explained that they seek to link conservation work with development work (e.g. human resource development and infrastructure development).

In addressing the issue of integrating traditional knowledge of local and indigenous people into biodiversity management (action 9), DoF, DWREA and others have made efforts to respect traditional beliefs about conservation when conducting zoning. For example, when doing village zoning, there are efforts to respect traditional fish conservation zones, sacred sites, and local monuments. For example, when doing upcoming detailed zoning for Xe Champhone Ramsar site, the Ramsar Field Management Team and Provincial Ramsar Committee will incorporate traditional Monkey forest and crocodile conservation zones (reported by IUCN Lao PDR).

DoF reported that action 10 on introducing year round bans on hunting and harvesting in substantial core areas within NBCAs has been partially met. DoF explained that in the NBCAs,

there are strict management zones where people are not allowed to collect NTFPs or hunt wildlife. However, these zones are only well protected in the 5-6 NBCAs that have funding support. The rest of the NBCAs lack resources for monitoring, patrolling and enforcement of the strict zones.

Most of the work under this objective was carried out by DoF. Key achievements included upgrade of some provincial protected areas to NPAs, approval of 4 NPA master plans, boundary demarcation in Na Kai-Nam Theun National Protected Area and revising the Forest Law and the decree on NPAs. The main shortfall is the insufficient and unsustainable financial resources available to implement NBCA management plans. In addition, progress with training NBCA staff lacked concrete examples.

In 2nd NBSAP, a priority must be on developing a sustainable financing mechanism for management in NBCAs. More overlap between NBCA management plans and poverty reduction plans is also recommended.

Obj 3: Conserve threatened and endangered species by enabling the species to survive in their natural habitats.

Lao PDR became a signatory to CITES in 2004. CITES principles of endangered species conservation and restricting wildlife trade were adopted in the 2007 Aquatic and Wildlife Law. In 2007, DoF worked with international organizations to establish a “Lao Red Lists” of endangered and threatened species of fauna (relevant to actions 1 and 2). The document is published and widely distributed to public. The threatened and endangered species in Lao PDR are under Category I (strict management) (relevant to action 1). Category 1 fauna include: Lesser One Horned Rhinoceros, Kouprey, Asian Elephant, Banteng, Sun Bear, Tiger, Eld’s deer, Siamese Crocodile, Chinese Three Striped Box Turtle, Green Peafowl, and Great Hornbill. There is not yet a “Red List” of species of flora.

The “Lao Red List” is somewhat different from international standards, such as IUCN’s Red List, in part, because the classifications are based on population surveys more limited than what international standards require (relevant to action 3, reported by DoF). For example Wild Water Buffalo is under Category I of Lao list, but under category III of CITES, Francois’s Langur is under Category I of Lao list, but under category II of CITES, and Irrawady Dolphin is under Category I of Lao list, but under category II of CITES. Regardless, Lao Red Lists are very useful for relevant officers to monitor and control wildlife hunting and trade.

Unfortunately, monitoring of the vulnerable and endangered species in Lao PDR (relevant to action 2) is limited. There is monitoring of Tiger in Nam Et-Phou Leui NPA by WCS, Eld’s Deer by WWF, Siamese Crocodile by WCS and Saola and gibbon by IUCN, to provide a few examples. The important “Status of Wildlife of Lao PDR” report has not been updated since 1999.

Department of Agriculture, Department of Forestry, Department of Livestock and Fisheries, and Department of Customs use the Guidelines for Implementing CITES which issued by Department of Forestry in November 2006. These guidelines are used to check flora and fauna being imported and exported, mainly at international check points (relevant to action 4). Key species, normally flagship species have been identified for specific management (relevant to actions 7 and 9). Specific recovery plans have been created for some of these species (relevant to action 10). Some of these recovery/protection plans include: a National Tiger

Action Plan for Lao PDR 2010-2020, a bilateral MoU between Laos and Cambodia on Irrawady Dolphin transboundary conservation; a MoU on Mekong Giant Fish conservation between Laos and Thailand; and Gibbon Conservation Action Plan (2011-2020) has recently been launched. Other flagship species that have been the focus of conservation efforts include: Saola, Eld's Deer, Asian Elephants, Siamese crocodiles, Great Hornbill, and Green Peafowl. Many of these species specific conservation efforts are funded by international donors.

Lao PDR has taken steps to monitor illegal hunting and trading (relevant to action 5). The DFRC and customs officials work with local people on patrolling, market observation, setting up check points, confiscating hunting guns and educating target groups. DoF did not provide more specific information about how successful and widespread efforts are. However, IUCN Lao PDR reports that more resources are needed to support monitoring of wildlife hunting activities and the wildlife trade. There has not been as much work to support CITES implementation as there has been CBD and Ramsar implementation in Lao PDR. No stakeholders reported that mechanisms to enable identification of vulnerable species have been developed and applied as planned under action 6.

In terms of implementation of legislation to protect wildlife (relevant to action 8), as explained above, Aquatic and Wildlife Law was passed in 2007. The ASEN-WEN project has been supporting implemented through collaboration with DoF and DoFI. Local media programs indicate that illegal wildlife items are sometimes confiscated and traders fined. In addition, FAO reported a new Fisheries Law was passed in 2009 which sets out requirements for protecting certain species of fish and aquatic animals. However, implementation of it has been limited since an implementing decree and regulations are not yet in place. Other relevant natural resources laws include Forestry Law, Environmental Protection Law, Land Law, Agriculture Law, Water Resources Law (currently under revision). These laws have been widely disseminated from central to provincial level through Lao National Assembly members. Provincial governors also disseminate laws and regulation to district leaders/senior staff. When Forest Law was updated in 2008, the Department of Forest Inspection (DoFI) was set up to assist with safeguarding the country's forests, particularly NPAs. Wildlife monitoring falls under DoFI's responsibility. DoFI actively cooperates with ASEAN-WEN.

Action 11 and 12 included planning for management controls, principles and concepts for species conservation. However, stakeholders were unclear on what was meant by this so could not report on whether this was accomplished. If similar actions are recommended under the 2nd NBSAP, they should be more clearly explained. DLF reported that one management principle that has been applied has been use of a transboundary approach for key species that migrate across borders. That said, it is clear that wildlife management in Lao PDR looks to International Red list as a guideline.

In summary, Lao PDR has made progress with protecting threatened and endangered species. However, as the country continues to rapidly develop and investment in the natural resource sector expands (e.g. plantation, mining, hydropower concessions), habitats of key species may be threatened or eliminated. As such, it is necessary that the 2nd NBSAP make recommendations about the importance of ensuring the biodiversity surveys are part of the ESIA, investment approval process. In addition, the 2nd NBSAP should lay out a plan for directing more funds and resources for CITES implementation in Lao PDR.

Objective 4: Establish and maintain ex-situ research and conservation facility.

There are many examples of efforts to regulate and manage the collection of biological resources from natural habitats to ensure that ecosystems and the in-situ population are not disturbed. A few examples of this (among many) include, the regulation on collection of medicinal plants and a Prime Minister decree on Sustainable Management of Production Forests 22/05/2002.

Ex-situ research and conservation are not common practice in Lao PDR, so there are only a few examples of progress in this area. In the case of indigenous rice species, Laos has a number of 3,169 rice varieties, 13,193 samples have been stored at Lao and IRRI Rice Gene Bank in the Philippines. In addition, TRMI has worked on medicinal plant conservation in parts of Borikhamxay, Oudamxay, Xieng Khouang, Luang Nam Tha, Savannakhet, Champassak and Sekong provinces using both in-situ and ex-situ approaches. LARReC reported working on a number of aquaculture relevant projects that use ex-situ approaches, such as artificial breeding of Mekong skinned catfish (check translation). Another example of ex-situ conservation comes from the Forest Research Center where some rattan species are conserved for studying and propagation purposes. A final example comes from the Department of Livestock and Fishery which partnered on an elephant breeding program implemented in Thong Mi Xay and Hong Sa districts in Xayaboury province; and, Pathoumphone district, Champassak province. These projects both work on ensuring that ex-situ biodiversity is controlled and managed effectively (relevant to action 2) and promoting research on ex-situ conservation (relevant to action 3).

Despite these examples of specific ex-situ conservation progresses, there was no progress on regulating and managing the collection of biological resources from natural habitats to ensure that ecosystems and the in-situ populations are not disturbed (action 1). In addition, no stakeholders reported integrating ex-situ measures through research and developing appropriate approaches for the recovery, rehabilitation and reintroduction of endangered species into their natural habitats (relevant to action 4).

In the past, there has been talk of establishing a National Natural History Museum, but this activity was not yet realized (relevant to action 5). There is however, a Arboretum at Faculty of Forestry, National University of Laos (established in 1972), and Pha Tad Kae botanic garden, a privately owned botanical garden in Luang Prabang (established in 2009) (relevant to action 6). The only zoo in the country is in Ban Keune, Thoulakhom district, Vientiane province, established in 1994. It has a limited number of animal species.

Though there have been a few projects focused on ex-situ conservation, there do not appear to have been national level efforts to create guidelines for removing species from the wild and then potentially reintroducing them for the sake of conservation. This will need to be further developed in the future. The establishment of the arboretum, the botanical garden and the zoo are major accomplishments though further investigation needs to be done to see how these educational establishments can directly support conservation efforts (e.g. breeding endangered species for reintroduction to the wild, not focusing exclusively on educating the public). Further reflection amongst NBSAP stakeholders will be required to see if the establishment of a Natural History Museum and development of ex-situ conservation guidelines should be pushed as a priority action for the 2nd NBSAP.

Obj. 5 Ensure that the social and economic benefits from the use of genetic materials and products originating in Lao PDR accrue to the nation.

Though much of the population relies heavily on the social and economic benefits derived from use of genetic resources (such as NTFPs), there has been little progress in ensuring that these benefits are evenly distributed. More example, even though some NTFPs (such as medicinal plants, orchids, rattan, and bamboo) are traded internationally and some taxes are collected on these items, there is not a system in place to ensure that communities from which the materials originate benefit (action 7). For example, because it is mostly raw goods that are exported, local communities do not benefit from the value added of processing. Though Domestic Investment Law, Law of Promotion of Foreign Investment, and Intellectual Protection Law mention the issue of Access and Benefit Sharing, there has not been a law developed dedicated specifically to ABS, and there are not signs that the ABS components of pre-existing laws have been effectively implemented (relevant to action 1). In addition, national rules for protection of traditional knowledge (relevant to action 2) have not been drafted nor have international ABS regulations been translated into national regulations (relevant to action 4).

In terms of developing capacity in the field of modern biotechnology (relevant to action 3), some personnel resources have been developed. STRI has sent staff for short and long term study. Four staff were sent to masters programs and one staff member was sent to a doctoral program abroad. In addition, four staff completed master's degrees within the country. In addition, the FAO supported the Capacity Building and Regional Collaboration for Enhancing the Conservation and Sustainable Use of Plant Genetic Resources in Asia. FAO also supported training, capacity building, knowledge sharing, technical assistance to establish the National Implementation Sharing Mechanism for Monitoring the Implementation of the Global Plan of Action (NISM-GPA) for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (PGRFA). This included development of PGRAF website to store data and development of technical and policy advice and awareness raising materials. .

Lao PDR, especially the STRI participated in all COP/MOP, including the last one in Nagoya, Japan, 11-15/10/2011 (relevant to action 5). There was no progress reported on ensuring that industrialized countries whose businesses use Lao PDR's genetic resources, can only use those resources if benefits are shared equitably.

Overall, benefit sharing arising from utilization of genetic resources in the country has not been properly developed. Though ABS is mentioned in various laws such as Domestic Investment Law, Law of Promotion of Foreign Investment, Intellectual Property Law, there is little evidence that the ABS components of these laws has been effectively implemented. There has not been a strong emphasis on ensuring that value is added to goods through processing before leaving the country. ABS should be a focus in the 2nd NBSAP.

Objective 6: Protect indigenous biodiversity from the uncontrolled introduction and spread of alien species and genetically modified organisms (GMOs)

Substantial progress has been made on protection of indigenous species from alien species and GMOs. NAST reported that Lao PDR became a signatory to the Cartagena Protocol on Biosafety (CPB) in 2004. Implementation of the protocol is in early stages. The National Science, Technology and Environment Authority (former STEA) acts as coordinating agency and worked with relevant stakeholders to draft the Biosafety Law in December 2004 (relevant to action 1 and 11). Lao PDR refers to the Cartagena Protocol on Biosafety when it comes to

import and export of Living Modified Organisms (LMOs). Though the Lao Biosafety Law was drafted and considered, it has not yet been passed. The draft law reflects the Cartagena Protocol's requirements regarding import and export of animals and plants (relevant to actions 1 and 2). In addition, DLF reported that they developed Livestock and Veterinary Law, according to the Cartagena and other international obligations.

In terms of committees to execute functions required by CBD (risk assessment, precautionary principles, public participation, etc), quite a few relevant bodies have been set up (action 3). The National Agriculture and Forestry Research Institute (NAFRI) reported that it has a National Coordination Committee on Biosafety. NAST reported that the Minister of Sciences and Technology was assigned as National Focal Point on the Biosafety Protocol and that a National Steering Coordination Committee on the Biosafety protocol was established. The Steering Committee has had some progress. For example, STRI reported that the Steering Committee has been working on Implementation of the National Biosafety Framework (INBF) 2009 – 2013 through work on developing and strengthening capacity and monitoring alien invasive species. Implementation, specifically implementation relevant to LMOs, is mainly the responsibility of STRI's technical staff (relevant to action 4). STRI stated that they also worked on monitoring plants and animals according to national laws and regulations. According the DoA, that though STRI is working on monitoring GMOs and LMOs, there is no specific institute or organization responsible on alien species work and this represents a major gap (relevant to action 6).

NAST reported that STRI completed development of the National Biosafety Framework for Lao PDR in December 2004 (relevant to action 5). The framework is a combination of policy, legal, administrative and technical instruments that are set in place to address safety for environment and human health related to modern biotechnology. This framework also covers government mechanisms for public education, awareness and participation (relevant to action 6). From 2010 to 2013, the National Biodiversity Framework will receive implementation support from GEF 4. NAST reported that between 2004 and 2008 STRI conducted many activities on awareness raising surrounding LMO issues. No stakeholders provided examples of these awareness raising activities. NAST also reported that the Implementation of National Biosafety Framework (INBF) project is working on developing guidelines for risk assessment and monitoring for relevant sectors (relevant to action 9).

DoA and DLF reported that there is no quarantine law developed (relevant to action 7). However, there are specific regulations passed by the National Assembly on specific species and diseases. In addition, DoA and DLF reported that a Crop Protection Law was approved by the National Assemble, issue No: 06/NA, dated 9th December 2008. DoA and DLF reported that though more monitoring of invasive species is needed, there have been efforts to check for alien invasive species at the border crossing check points (relevant to action 8). Though actions have been taken against certain alien invasive species (e.g. encourages local people to eat snails when snails were damaging rice crops), for formal reporting or monitoring system and plan for taking action against alien invasive species is in place.

In terms of developing data and information exchange mechanisms on Biosafety, STRI established Lao Biosafety Clearing House which provides information on Laws and Regulations concerning the Conservation, Transboundary movement and Sustainable use of Biological Diversity of Living Modified Organisms (LMOs). The Clearing House created its

own website between 2006 and 2007, <http://la.biosafetyclearinghouse.net/> (relevant to action 10).

To summarize progress under this objective, setting up Biosafety coordination committees, submission of a Biosafety Law to the National Assembly for consideration and improving LMO monitoring have been major accomplishments under the 1st NBSAP. However, there has not been substantial progress with monitoring and controlling alien invasive species. As such, in the 2nd NBSAP, there should be an emphasis on alien invasive species with responsibility clearly assigned to specific institutions or organizations. Under the 2nd NBSAP, guidelines and instructions for field monitoring and risk assessment should be developed for relevant stakeholders (such as border checkpoint officials). There should also be a focus on strict law enforcement related to import and export of plants and animals.

Obj. 7: Promote ecologically sustainable management practices for ecotourism.

There has been rapid progress with ecotourism development in Lao PDR. The Lao National Tourism Authority (LNTA) is responsible for all tourism development in the country. LNTA is a central point in coordination with government sectors (transportation, security and forestry) and international donors and organizations (relevant to action 1). The LNTA's work is directed by the government approved Tourism Strategy to 2020. Under the guidance of LNTA, tourism has grown steadily over the last decade. The number of tourists visiting Laos has increased from 737,208 in 2000 to 2,513,028 in 2010 and it is expected that the number of tourists will be 3 million tourists in 2020.

The LNTA has focused in working with both public and private sectors to promote sustainable growth of tourism (relevant to action 2). During last 5 years, a few provinces have had their Provincial Tourism Offices upgraded to Provincial Tourism Departments with more staff added. The LNTA plays a role as liaison body to local tourism organizations and at the same time, supports the growth of the private sector. Examples of private public joint tourism ventures include the Gibbon Experiences in Bokeo, Tiger Trail in Luang Prabang, trekking in various NPAs and Kingfisher Lodge, an ecotourism venture in Xe Pian NPA.

LNTA has focused on identifying best practices in tourism and building human resource capacity (relevant to action 3). For example, LNTA organized trainings for provincial and district staff. At the village level, LNTA organized awareness raising activities on tourism. In addition, tourism service training was also organized to local tourism service providers. Private sector tourism operators provide their staff with training in hospitality and cooking.

To ensure that local benefit from tourism, there have been efforts to encourage local people to act as guides and receive benefits from conserving the surrounding environment. Local people can also get income from running home stays, selling handicrafts and food, and providing local transportation (relevant to action 4). For example, local guides provide trekking tours through many of the NPAs. However, in general, the amount of money that each visitor spends in Lao PDR is not very high. Efforts to ensure that each tourist spends more money in the country will increase benefits to local people.

Though stakeholder did not report on prime minister approved regulations for eco-tourism management (action 5), it is clear that there are standards in place. In each province, there is a Tourism Management Unit that provides guidance to private tourism businesses and districts with tourism sites on how to effectively manage tourism. In addition, any people entering NPAs

for trekking are supplied with rules on how to avoid damaging the environment during trekking. In addition, there have been guidelines developed to teach tourists about culturally and environmentally friendly travel in Lao PDR (entitled “Do’s and don’ts in Laos”). This guide has been widely disseminated (e.g. there are copies on all Lao airlines flights). In terms of central level guidelines, the LNTA has developed a guideline for building of Ecolodges which strongly advises in using local materials and using energy saving technologies. Often local communities establish rules specific to their tourist sites. For example, local authorities require that women visiting Buddha Cave near Tha Khaek wear a traditional Lao skirt. They also require that groups trekking in the forest not exceed 8 or 10 people.

To strengthen capacity in ecotourism and improve institutional arrangements, the Ecotourism Division has been established under LNTA Planning Department (action 6). It is mandated to manage ecotourism activities throughout the country. To support public and private cooperation, the Lao Tour Operator Association has been established through financial support from EU. In addition, the Lao Hotel and Restaurant Association has been established in last 5 years. In terms of capacity building, a Tourism Training Division under National Tourism Authority runs courses in collaboration with the Lao Tourism Training Center in Vientiane. It also organizes courses in other provinces. The National University of Laos has also developed ecotourism curriculum for students studying Bachelor Degrees in forestry and economics.

The government of Laos and other relevant stakeholders focus on environmental protection in ecotourism areas (action 7). For example, when trekking in most NPAs, each tourists has to pay 1-2 US\$ per day to the NPA authority.

To support long term planning in developing of ecotourism in Lao PDR, there was research assessing and evaluating in ecotourism projects implemented over the last five years (action 8). For example, a study on the environmental impacts of tourism in Vangvieng district was conducted. There has also been an emphasis on spreading information about tourism. Over the last 5 years, tourist information centers have been opened in many provinces. The LNTA joins national, regional and international events every year to support information sharing/exchange regarding ecotourism development. ecotourismlaos.com, a website hosted by the LNTA is a good source about ecotourism in Lao PDR.

In general, this objective was well implemented. Ecotourism trainings opportunities have expanded and more information is available to tourists to encourage them to follow socially and environmentally responsible practices while traveling. In the future, further steps may be taken to ensure that local communities and ecosystems benefit from tourism activities.

Objective 8: Support the conservation of biodiversity through ecological sustainable forestry management practices.

Progress has been made with delineating forest types (action 1). Forest Law No: 06/NA, dated 24th December 2007 defines different forest types. Forests are categorized as: Protection Forest, Conservation Forest and Production Forest. Protection Forests include 46 areas (covering 3.5 million hectares). Conservation Forests include 24 national sites (covering 3.4 million hectares), 65 provincial areas (covering 505,910 hectares) and 146 district areas (covering 400,224 hectares). Production Forests consist of 51 areas (covering 3.1 million hectares).

Specific regulations have been developed to govern land use within each forest category (action 2). DoF reported that each forest category has its own regulation and state decree to address management. For example, protection forests are governed by state decree No: 333/PM 2010 and Production forest is governed by state decree No: 59/MP. In addition, production forests are governed by MAF regulation No: 0204/MAF, dated 03/10/2003 on establishment and sustainable management of production forest. A state decree on protected areas is currently being drafted.

There has been substantial work on improving management of production forests in particular (relevant to action 3). In 1995, there were only two production forest areas in Laos, located in Khammouan and Savannakhet provinces. In 2004, the Sustainable Forest and Rural Development (SUFORD) project supported creation and implementation of new production forests areas in Champassak and Saravan provinces. In 2009, the SUFORD project extended work into additional provinces such as: Xayaboury, Vientiane, Borikhamxay, Xekong and Attapeu. As explained above, there are now 51 production forest areas in the country. Some of them have management plans formulated by the responsible sectors at the central and local level through assistance from the SUFORD project. District and village management committee were set up to monitor the sites.

Of the 51 production forest areas, a few sites (for example, Dong Phou Xoy and Dong Si Thouane) are certified by the SMART WOOD, an international authority that certifies that wood exported to EU and US markets is from sustainable sources (relevant to action 4). WWF is a leader in forest certification, working closely with Ministry of Agriculture and Forestry and Ministry of Industry and Commerce. The Forest Certification Project phase 1 ran from 2005 to 2010 in Dong Phou Soy, Xe Bang Fai, and Na Kathing village of Mahaxay district, Khammouane province as well as Dong Si Thouane village in Tha Pangthong District of Savannakhet province. The project worked in an area of 81,582 hectares. Phase 2 of the project is underway (2010 to 2015) and has been expanded to Saravan and Borikhamxay provinces. The project includes a focus on rattan.

DoF reported that Forest Inventory Division created a regulation on logging. This regulation states that after an area is logged, it should lie fallow for a period of 15 years (relevant to action 5). In addition, MAF issued a decree No: 0069/MAF, dated 13th May, 2002 setting rules on surveying trees before and after logging.

There were efforts made by the government of Laos to promote tree plantations (relevant to action 6). The government offers low credit loans to companies and individuals investing in tree plantations such as Agar wood, Teak, Eucalyptus and Rubber. Some well known companies including Oji Lao, Huang Eng and Thai Houa have invested in tree plantations. The government also encourages planting trees for environmental protection under PM decree No: 96/PM, dated 11/June/2003, which encourages planting trees along roads, open spaces and parks.

There are some state decrees encouraging sustainable collection of NTFPs and medicinal plants (relevant to action 7) such as the decree on NTFPs No: 17/MP 2007 and decree on medicinal plants No: 155/PM, dated 30th September, 2003. SNV is one of the main stakeholders supporting sustainable rattan and bamboo harvesting for poverty alleviation in Champhone district, Savannakhet; Sangthong district, Vientiane Capital; and, Houaphan province. DoF reported that the government actively supports local people to utilize the potential of NTFPs in their areas for additional household income (relevant to action 8). Some

of these efforts have been supported by international organizations. For example, IUCN's Livelihoods and Landscapes project (LLS) supported local people to sustainably manage and market Malva Nuts in Pathoumphone district, Champasack province in 2008. In addition, many companies are investing in NTFP production and encouraging local people to harvest them. For example, the Sumura Company supports local people to plant medical plants in Lao Nguam district, Saravanh Province.

DoF reported that government encourages local, public and private sector participation in protection and utilization of forest resource (action 9). For example, government has been conducting forest and land allocation program since 1990 with support from SIDA. Land and Forest Allocation involves local people as well as various levels of government and includes allocating production land to local people. SUFORD is a good example of efforts to get local people involved in forest resource management. The project aims to encourage local people to manage production forests.

DoF reported that they have been working to improve human resource capacity of forestry officials (relevant to action 10). Forestry officials have participated in long and short term trainings at international and national institutions and many more officials have graduate degrees today than was the case 5 years ago. In addition, more students are graduating from NUoL with degrees from the Faculty of Forestry. However, NUoL reports that some of these graduates have trouble finding jobs.

DoF reported that there have been efforts to minimize impacts of plantations on neighboring ecosystems (relevant to action 11). Regulations and decrees on this topic include, prime minister decree No: 96/PM, dated 11 June 2003 on planting trees for commercial and environmental protection and regulation No: 0196/MAF, 2000 on sustainable forest development and tree plantations. Though these regulations set out a good standard, IUCN Lao PDR says that in practice, these regulations are not fully implemented. For instance, through a project under UNDP-UNEP's Poverty Environment Initiative Project, IUCN and NERI conducted case studies on two plantations in Savannakhet and Saravan province. The case studies found that local people report that the plantations have had many negatives impacts on surrounding ecosystems (e.g. contamination by pesticides), but there has been little monitoring of these impacts. IUCN Lao PDR reports that these case studies are not unique and more needs to be done to minimize the effects of plantations on ecosystems.

DoF reports that though in general, the rural population in Laos does not suffer from a shortage of fuel woods (they collect from their own production land as well as from the community forestry areas), there have been efforts to regulate fuel food (relevant to action 12). MAF recently issued regulation No: 0819/MAF, dated 14th March, 2011 on management and utilization of woods for fire wood, fuel and for commercial purpose.

In terms of integrating catchments management for upstream forests outside of NBCAs, DoF has taken the initial step of identifying head water forests to be protected (relevant to action 13). However, due to lack of budget, no progress has been made with managing these forests.

In terms of collecting forest resource data, some progress has been made (relevant to action 14). The Forest Inventory and Planning Division collects information on forest cover throughout the country. This information is published and widely distributed. DoF also collects some additional information on forest resources under the SUFORD project (available

through the IT unit). Within DFRC, there is some additional information available in the Information and GIS management section. While forest resource data is stored in various locations, more work could be done to improve regular monitoring of forest resource data and its accessibility. More work is also needed to ensure the quality of the data that is currently available.

Since 2004, DoF has made strong efforts in forest management, especially with assigning forest categories and expanding production, protection and conservation forests. Areas that have not been adequately addressed under the 1st NBSAP that should be considered for the 2nd NBSAP include: more extensive implementation of Land Use Planning that takes into account principles of environmental sustainability; a comprehensive policy for forest management particularly for logging and fuel woods; monitoring of impacts of plantations on surrounding ecosystems; and writing management plans for a larger number production forests.

Objective 9: Promote industrial, energy and mining development by minimizing the impacts on biodiversity during industrial development processes.

Ministry of Energy and Mining has taken steps to make stricter EIA and ESIA requirements (relevant to action 1). Prime minister No: 112/PM, says that the outside consultants must be hired to conduct EIAs or ESIA for certain types of projects before the project can proceed. This regulation also requires all factories and manufacturers to conduct EIAs and write a proper environmental management plan before proceeding. The goal of this regulation is to limit factory emissions. To support these stricter EIA requirements, WREA reported that they set up an ESIA division in 2007 and also upgraded the ESIA regulation to a state decree in 2009. Ministry of Public Work and Transportation also set up the Environmental and Social Division at the Public work and Transportation Institute to look at impacts of industrial development.

WREA noted that the new decree on environmental standards and emissions standards issued by WREA Minister in 2009 applies to all sectors. This represents a departure from the past since previously, each sector set its own standard. WREA was not clear on how the new regulation would be implemented. No stakeholders reported that standards specific to mining were developed as was recommended under Action 2.

Ministry of Energy and Mining reported that they encourage private sector to integrate environmental concerns into their decision making by requiring environment management plans before project approval (relevant to action 3). The process of writing an environmental management plan requires that companies learn Lao PDR's environmental regulations. Stora Enso, a private paper and wood company, has gone beyond basic EIA requirements. In 2007, the company contracted IUCN Lao PDR to carry out a rapid biodiversity assessment on their eucalyptus plantation in Savannakhet and Saravan provinces. To encourage private sector to act responsibly, Ministry of Public Work and Transportation reported that they disseminated laws, and regulations on water supply and construction for private companies. WREA developed a compensation system that is put into place whenever an investment project has a damaging impact on local communities. As funds are taken from the investor, this also serves to encourage investors to avoid damaging the surrounding environments.

MEM reported that they contributed to the new energy policy based on lessons learned from renewable energy projects (relevant to action 4). The Renewable Energy Strategy for Lao

PDR (2010) sets a target of 30% renewable energy for the country by 2020 and lays out a plan for reducing reliance on fossil fuels. NAST reported that STI has promoted renewable energy especially biomass, solar, biofuel and save cook stoves (which reduce charcoal consumption) and bio digesters (installed at 35 sites) since 1997 (relevant to action 5). In 2007-2009, SNV conducted a feasibility study on biofuel and biogas (Jatropha) and built over 1,000 biodigesters in Savanakheth, Vientiane Capital, Xieng Khouang and Houaphan provinces. The Lao Institute for Renewable Energy works on hydropower, bio-energy, solar water purification and wastewater treatment projects throughout the country. In addition, Sunlabob, a commercial company focusing on solar power carries out project including: providing solar lamps in areas without electricity and developing small renewable energy grid in isolated places that can be hooked into the main government grid once it is expanded in the future.

Ministry of Industrial and Commerce reported that the Industry Department says that factories and manufacturers must use new technology in order to reduce emissions, smoke, CO₂, dust and reliant fuel woods (action 6). Though, Ministry of Energy and Mining reported developing legal guidelines for project developers and MIC and WREA reporting updating technical aspects of laws, no stakeholders reported on taking steps to improve enforcement (relevant to action 7). In fact, WREA reported that many laws related to industry and mining are not currently properly enforced. The case studies under the Poverty Environment Initiative project that IUCN and NERI worked on indicated that the government has limited resources to monitor the impacts of investments on surrounding environment and communities. Some laws were not adhered to, but local governments were unaware due to lack of monitoring. Monitoring is an essential precursor to law enforcement.

No stakeholders reported developing a strategy on mining (relevant to action 8) or promoting the use of cost benefit analysis as a selection instrument for investments (relevant to action 9). In terms of establishing sustainable industrial processes (relevant to action 10), MEM reported that they work to protect headwaters. However, they did not elaborate on how they do this.

The Ministry of Energy and Mines reported that government helps to improve facilities in existing industrial development zones (relevant to action 11) and to expand industrial zones. For example, at Khok Sa Ad zone in Saythany district, Vientiane capital, infrastructure has been developed such as roads, water supply, electricity and communications amenities. MIC reported that the industrial zones have been identified in every province.

According to MIC, development of new industrial zones must involve consultation with all key stakeholders, including local communities (relevant in action 12), but MIC did not elaborate on how this occurs. MIC has a policy of promoting environmental friendly technologies (action 13). For example, in response to government restrictions on CFCs and HCFCs, companies have started using cleaner technology, such as using solar energy and biogas.

MIC reported that they have been using the government fund and donor funds to conduct training for various investors on Lao's laws, regulations and guidelines (action 14). In addition, MIC explained that they have created a standard that a company that pollutes must pay to fix the damage they created (relevant to action 15). However, there are questions about how effectively this polluter pays principle is being enforced. WREA said that though this principle has been accepted since 1999 and it is a part of Environmental Protection Law. IUCN reports that this principle is not strictly followed, due to lack of human, equipment and financial resource to support monitoring.

Regarding action 16 on an industrial code of conduct, MIC reported that they distribute their code to investors, though they did not provide details on the main points of their code. GoL has been working with relevant sectors on monitoring to ensure that the high environmental standards are being met (relevant to action 17). WREA reports that it enforces Industry Law and decree on EIAs to maintain high environmental standards. IUCN reports that WREA's 2009 environmental standard addresses many issues related to industrial development. WREA reported that MIC recently passed a regulation on waste and pollution management which is also relevant.

Key achievements have included setting up department divisions to specifically promote environmentally responsible investments, focusing on EIAs and ESIAAs. In addition, various laws and standards have been updated. It seems that the biggest obstacle to address in the course of the 2nd NBSAP is monitoring of environmental impacts of investments and enforcing laws accordingly (such as enforcing the polluter pays principle).

Objective 10: Support the conservation of biodiversity through ecologically sustainable agriculture.

Department of Agriculture reported that the Agriculture Law was revised in 2009 and will soon be approved by the National Assembly (relevant to action 1). Many stakeholders reported on efforts to switch upland farmers to sedentary agriculture (relevant to action 4) since GoL has set the target of ending shifting cultivation by 2015. NAFRI reported that they cooperated with CIDRAD (Funded by AFD) to conduct a SCV project on promotion non-shifting cultivation agriculture practices in Xieng Khouang and Xayaboury provinces between 2004 and 2009. NAFES also reported that the Areas Development Programme (ADP) and NNRBDSP have been working on this action as well by focusing on sustainable production in upland areas. Additional activities are listed in the matrix.

In terms of efforts to promote irrigation management, NAFES reported that there were two projects to improve irrigation systems between 2003 and 2007, namely "Smallholder Development Project" (SHDP) and "Area Development Program" (ADP). SHDP worked in Vientiane, Khammouane, Savannakhet and Champassak provinces, and ADP worked in southern provinces of Laos. Stakeholders did not report on national level efforts to improve the country's irrigation systems.

Related to this, there have been various efforts to introduce participatory land allocation and land use tenure (relevant to action 3). NAFES reported that between 2005 and 2009 the Shifting Cultivation Division allocated land to 7,130 villages. Nam Ngum River Basin Development Project (NNBDP) which is supported by ADB allocated land to farmers in 90 villages covered 9,979 hectares. DoA generally reported that GoL is allocating land to communities for permanent use (instead of use for shifting cultivation).

In addition to land allocation, GoL has also supported people in accessing funds to invest in agriculture land (action 5). Projects relevant to this action include LUFSP (Lao upland Food Security Project, under World Bank), TABI (The Agro Biodiversity Initiative) and International Centre for Tropical Agriculture (CIAT) through funding from SIDA. ADB has also funded a project on livelihood improvement activities for farmers in the Northern provinces. SNV reported that they have been working with local people in Outhomphone district, Savannakhet province to establish a farmer's cooperation fund (Agriculture Credit Union). SNV has been working with Nayobai Bank, Agriculture Promotion Bank and Phonesavanh Bank to get low

credit loans for farmers. DoA reported that they collaborated with Nayobai bank to provide loans for farmers. ADB supported a revolving fund for raising livestock (especially pigs). DoA explained that they have not focused on helping farmers to access markets as this is the responsibility of the trade sector.

NAFRI reported that from 2006 to 2011 they completed land use classification in 105 districts in Lao PDR including the 47 poorest districts (relevant to action 6). NAFRI plans to complete land allocation for the remaining districts by 2012. This work is supported by the Forest Rehabilitation Fund and carried out through collaboration between the Vietnam and Laos URDP project. Within the URDP project, NAFRI also conducted agro ecosystem zoning in 8 districts in Luang Prabang, Oudomxay, Luang Namtha and Bokeo provinces. Through support from SDC, TABI project conducted the agro ecosystem zonings for its targets areas in Phonexay district, Luang Prabang province and Phou Kood district, Xieng Khouang province in 2009.

In terms of efforts to analyze further trade opportunities (relevant to action 7), DoA reported that they conducted a study in preparation for an AFTA meeting and discovered that there were many opportunities for cattle trading in Lao PDR. No other analysis of trade opportunities were reported.

DoA discussed efforts to develop a structure for the Agriculture Sectors based on current needs (relevant to action 8). DoA explained that MAF has been working closely with MIC to exchange information about trade in agricultural products (related to action 9) that will influence future agricultural planning. MIC did not provide more detail on what kind of monitoring of regional agricultural trading they're doing.

There have been efforts to trial and demonstrate new plant and animal species (relevant to action 10). NAFRI reported that they tested new hybrid rice species brought from China in ½ hectare through the GMS cooperation project (2009 to 2010) and did research on rice species that are resistant to flood, drought, pests and diseases in hopes of identifying species resistant to climate change. NAFRI also reported working on artificial insemination of cows to increase their weight. LARReC reported trialed raising various fish species through aquaculture. MRC also has ongoing work on trialing climate change resistant rice species in and around Champhone district, Savannakhet province. Given market demand for NTFPs, from 2005 to 2011, URDP supported NAFRI to research domestication of NTFPs in fallow lands in Phonexay district, Luang Prabang province; Namor district, Oudomxay province; and, Meung district in Bokeo province (relevant to action 11).

To conclude objective 10, key achievements include expanding Land Use Planning, reducing shifting cultivation in select areas, increasing farmers' access to credit and researching new rice species. In formulating the 2nd NBSAP, expansion of Land Use Planning (LUP) that follows sustainability principles should be considered. In addition, work on reducing shifting cultivation may need to continue since it is not clear if the goal of ending shifting cultivation by 2015 will be met. There should also be a focus on assigning agro-ecological zones for farmers so as to avoid the unproductive use of land.

Objective 11: Manage water resources for socio-economic development.

Various stakeholders reported on efforts to protect and maintain natural wetlands (action 1). DoF reported being involved in various meeting and workshops on managing key wetlands

within NPAs (however, DoF did not report on managing those wetlands directly on the ground). NAFRI reported carrying out a Forest Development Fund project on Forest Head Water Management Project in Protection Forests in Houayxay and Tonpheung districts from 2010 to 2012. WREA was heavily involved in preparations for Lao PDR's accession to the Ramsar convention in September of 2010. Two initial Ramsar sites have been designated (Xe Champhone wetlands in Savannakhet province and Beung Kiat Ngong wetlands in Champassak province). Since accession, IUCN and WREA's Department of Environment have been working together on setting up the institutional structure to govern Ramsar implementation. WWF has been involved in managing and protecting That Luang marsh in Vientiane Capital focusing on water treatment and restoration from June 2009 to May 2010.

There has been some confusion over which government department is responsible for wetlands conservation. Through WREA is assigned to manage Lao PDR's two Ramsar sites, it has been unclear who is responsible for managing the country's other wetlands, especially those outside of NPAs. This will hopefully be clarified as the government finalizes ministerial restructuring in the course of 2012.

NAFRI reported that from 2002 to 2007, it operated a project on Soil Erosion Control in Xieng Ngeun district, Luang Prabang province. The project focused on: 1) Soil erosion management/control; 2) Evaluating the impact of soil erosion on socioeconomic and development; and, 3) Developing integrated technical guidelines for soil erosion control in watershed areas (relevant to action 3). No other stakeholders reported working on river bank erosion.

There have been various efforts to improve implementation of water resources management (relevant to action 3). WREA reported that the Department of Water Resources has been working on developing watershed committee for main watershed systems in the country. Watershed committees for the Nam Kading/Nam Theun and the Nam Ngum have already been set up. WREA also reported passing some policies and regulations on water resources management. For example, a decree was passed to allow for creation of River Basin Committees, though it may further evolve in the future. River Basin Committee set-up has already started for the Nam Ngum, Nam Theun and Nam Ka Ding.

No stakeholders reported working on assessing the downstream impacts of catchments deforestation (action 4), developing laws and regulation on bank protection (action 5) or banning disposal of waste into river bodies (action 6).

Cooperation with neighboring countries on transboundary water issues (relevant to action 7) has focused on species conservation and discussing dam issues. DLF reported that they signed an MOU with Thailand and Cambodia on giant catfish (Pa Buk or Pangsius Micronemus) and Irrawaddy dolphin conservation. In addition, MRC has been working closely with Mekong Committees of all Mekong countries to discuss hydropower dam development on the Mekong River. An example of this cooperation is the recent decision to delay construction of the Xayaboury dam in Laos. Though MRC, Laos and the other Mekong countries have a forum for discussing issues of navigating the Mekong, watershed management and basin development.

The major accomplishments in water resource management are accession to the Ramsar Convention, assigning two Ramsar sites and setting up the country's first two watershed committees. The 2nd NBSAP should focus on setting out a clear framework for sector

responsibility for wetlands and water resource management. In addition, Ramsar implementation and supporting the work of the watershed committees should be emphasized. Since stakeholder feedback indicates that there has been limited progress on assessing the downstream impacts of catchment deforestation (action 4), developing laws and regulation on bank protection (action 5) or banning disposal of waste into river bodies (action 6), stakeholders should discuss the extent to which these should or should not be priorities under the 2nd NBSAP.

Object 12: Support the conservation of biodiversity in urban areas.

Regarding efforts to encourage local governments to retain and improve natural ecosystems (including indigenous species) (action 1), WREA reported that these efforts are supported by the Provincial Environmental Strategy of 17 provinces. This strategy was approved in 2005 and use the campaign slogan “ green cities, green roads and green schools”. The strategy sets the goal of planting one million trees in Lao cities each year.

In 2009, WREA reported that the National Environmental and Pollution Control Standard were established. The standards have been updated to state decrees (relevant to action 2).

In terms of encouraging participation of public and private sectors in urban environmental management (action 3), WREA reported that they have encouraged government organizations and the private sector to get involved in waste management, especially waste water and chemical waste management, in addition to management of other pollutants. MPT reported that they disseminate laws on waste and pollution for private sector and government organizations in order to encourage them to protect the urban environment. IUCN reported that on National Day and other important government holidays, citizens are encouraged to plant flowers, trees, clean up the roads, and reduce noise and light pollutions to beautify the cities (relevant to action 4).

Ministry of Public work and Transportation reported that they have developed urbanization plans for 147 cities in Laos (relevant to action 5). MPT completed implementation the 2nd City Development Project for 4 major cities in Lao PDR (Luang Prabang, Tha Kek, Savannakhet and Pakse) (Vientiane is considered the 1st city). MPT also carried out a small Cities Development Project.

It is difficult to assess progress with Action 6 “integrate biodiversity conservation into relevant policies and strategies” since this is so cross-cutting and not necessarily specific to this object.

To encourage retention of habitat in urban areas, and conservation of landscapes and architectural heritage in cities (action 7), MPT reported disseminating the urban planning law so that local authorities could understand the government policy on biodiversity conservation in urban areas. In addition, MPT drafted a regulation on architecture management.

Progress under this objective, appears to have been limited. Though there have been efforts to improve urban planning, dissemination of regulations on pollution and waste management and creation of environmental standards, it is not yet clear if this has translated to on the ground impacts of greener cities. For example, it is not clear if there have been impacts such as more green space in urban areas. These kinds of on the ground impacts will need to be targeted and monitored in the 2nd NBSAP.

c) Programme 3: Human Resource Development

Objective 1: Raise the awareness and capacity of government staff at all levels.

Efforts to enhance awareness of government staff on the significance of conservation and sustainable use of biodiversity resources (action 1) have included integrating these issues into the curriculum of the Faculty of Environmental Science, Faculty of Forestry, Faculty of Science and Faculty of Agriculture at the National University. NUoL also reported that there have been efforts to train NPA staff in NPA management. There were not extensive efforts reported to reach out specifically to government staff. Instead DoF, DLF, and WREA reported on efforts to raise public awareness, including national TV and radio programs that focus on conservation. Presumably, some of these messages to the general public also reach government staff.

There are examples of how action 2, increase understanding of the importance of biodiversity for poverty reduction has been achieved. The fact that the Poverty Alleviation Fund under the Ministry of Planning and Investment can be used to fund establishment of fish conservation areas and village production forests indicates that MPI has a good understanding of the link between biodiversity conservation and poverty reduction. The TABI project's work in Xieng Khouang and Luang Prabang focus on Land Use Planning to conserve biodiversity and sustain livelihoods. The project provides funding to a group of small projects that promote biodiversity rich agricultural methods and marketing of products to support rural livelihoods.

To promote understanding of the connection between poverty and environmental management (action 3), various stakeholders have conducted studies on the subject over the past 5 years. For example, under UNDP/UNEP-PEI, IUCN and NERI worked on case studies on the socio-economic and environmental impacts of key investment projects on local people. These studies explored the impact of environmental management of investments on poverty. DoF reported organizing workshops to share ideas on the connection between poverty and environmental management. In addition, arguably any projects that seek to improve environmental management in order to reduce poverty, increases understanding of this connection for all parties involved.

IUCN Lao PDR has been the primary stakeholder leading efforts to educate government staff about the principles and objectives of CBD (action 4). Under TABI work, IUCN has organized meeting with various central level government staff about CBD in the Lao context.

Overall, there have been some efforts to educate government staff about biodiversity conservation. However, most of these efforts have been at the central level and have focused on government sectors most directly related to environmental conservation (MAF and WREA). The 2nd NBSAP may consider pushing for more education at the provincial and district level as well as reaching out to other sectors that are not as directly involved in biodiversity conservation, but still important to it (MPW, MPI, etc).

Obj 2: Improve the research capacity of national experts in different fields related to biodiversity.

The primary research institutes that do biodiversity relevant research include the Agriculture and Forestry Research Institute, National University of Laos, National Science and Technology

Research Institute and the Traditional Medicine Research Institute. While it is understood that each of these institutions would benefit from improved research capacity and are always trying to work towards this goal, no stakeholders reported efforts to assess research capacity, develop a plan or set specific goals for improvement (relevant to action 1).

Due to limited capacity of national researchers and lack of high tech equipment, the majority of research requires the involvement of international researchers. There are many examples of international researchers supporting or leading research in collaboration with local partners. While there is an informal preference for working with those visiting scientists that prioritize transferring skills to Lao staff and students, no stakeholders reported following certain mechanisms or procedures to ensure that international researchers build local capacity (relevant to action 2). Despite this, stakeholders reported that many field surveys transferred skills to Lao counterparts to improve their capacity beyond the life of the project (relevant to action 7). For example, the Tiger conservation project in Nam Et –Phou Leui National Park taught NPA staff to use new equipment (camera traps) to track wildlife. The Division of Forest Resources Conservation, DoF were involved in saola, crocodile, gibbon, and NTFPs surveying. All of these surveys offered an opportunity Lao staff to learn to use modern equipment and techniques.

There were many efforts made to improve staff research capacity through training courses and involving them in research led by international organizations (relevant to action 3). The Department of Forestry reported that even though research activities are not directly in their mandate, DoF staff have been involved in research activities where they gained new technical knowledge. For example, DoF staff supported a bird survey during the Avian Flu outbreak in 2009; and, Douc Langur and Gibbon studies with IUCN Lao PDR in Nam Poui and Hin Nam Nor NPAs. In terms of training courses and graduate degrees, the National Authority of Science and Technology sent staff to attend many training courses, such as UNESCO courses on Biotechnology in Japan in 2004 and 2007. Between 2004 and 2010, NAST supported 10 staff to study master's degrees and 1 staff member to pursue a PhD in biotechnology, forestry, and environment. The Agriculture and Forestry Research Institute sent staff to participate in a training on the plant biodiversity (in NIAS, Japan) in 2008 and an international training course on plant genetic resources and gene bank management in Korea in 2009. The staff from Department of Livestock and Fisheries participated in trainings on pig diseases that affect humans, raising livestock, fish processing, and aquaculture at Khon Kaen University. NUOL cooperated with a Darwin Initiative project to provide Taxonomic Training (led by international taxonomists) on neglected Biodiversity Hotspots in Lao PDR to Lao taxonomists. In addition, the Department of Agriculture provided trainings on identifying plant diseases for staff working at border checkpoints. These are but a few of many examples.

There has been extensive cooperation with the international research community (relevant to action 4). The Agriculture and Forestry Research Institute is the largest national research institution and is mandated to research agriculture, forestry, livestock, fish and aquatic animals. Some of the international researchers and institutions that the Agriculture and Forestry Research Institute collaborates with include: IRRI, ACIAR, IDRC from Canada, NIAS Institute, ARCBC, CIRAD, and IRD. NUOL works closely with SIDA/SAREC (Sweden), AFD (France), SEARCA (Philippines), ICRAF/ SEANAFAE, and ICIAR.

There were numerous efforts to increase scientific knowledge of government staff through short and long term trainings and study both domestically and abroad (relevant to action 5) and these

are described above. However, no stakeholders reported on efforts to develop a skills improvement program. It seems that trainings and advanced degrees have been relatively donor driven. Government staff have taken advantage of opportunities as they have become available, but there does appear to have been a specific skill development program developed (action 6).

There has been limited progress in taxonomy training. The plant taxonomy has been a subject under Faculty of Forestry for many years and animal taxonomy has been a subject under Faculty of Science for many years. As noted above, NUoL and the Darwin Initiative collaborate to provide taxonomy training. However, overall, there has not been a long term taxonomy training program developed (relevant to action 8).

In Lao PDR, Lao scientists do not yet have scientific teams. Teams are temporarily formed to achieve a specific end under a project or mandate. However, there are no teams that exist over the long term to continually collaborate on certain subjects (relevant to action 9).

In conclusion, through training programs, graduate degrees and collaboration with international researchers and research institutions the capacity of Lao researchers is improving. The government has limited finances available to support junior experts to develop their scientific knowledge and skill. As such, the majority of support comes from donors and the international research community. These donors and international researchers have had a strong influence on the direction of human resource development since a government researcher skills development program has not been created.

Obj 3: Improved the management capacity at all levels.

Though there is no specific government program to assess and address training needs at all levels, there have been efforts to do this—some through government funding and some through projects with international donors (action 1). Within every government department, the Personnel Division creates short and long term personnel development plans. However, these plans do not specifically identify areas where trainings are needed. The personnel departments know basic information about all staff, but they do not conduct assessments of staff's skills. DoA, reported being able to conduct a thorough assessment without donor money (using government funds). However details of this assessment were not supplied.

As mentioned earlier, a number of projects have focused on capacity building for government partners so some of these projects have carried out training needs assessments, even if only on a small scale (such as the department level). For example in 2010, under a UNDP-PEI project, IUCN and NERI conducted a capacity needs assessment of the Investment Promotion Division within MPI. The Department of Livestock and Fisheries conducted a capacity assessment through the Wetlands Capacity Building Project. Under RIO/GEF project, work was done at the national level under the "National Capacity Self Need Assessment (NCSA)" project for CDB, UNFCCC and UNCCD from 2004 to 2008.

There were no training programs developed to address the outcomes of these assessments. However, there were training programs designed to address biodiversity management. WCS and NUOL led a series of trainings on biodiversity and protected areas management for national and provincial staff (relevant to action 2).

Formal education and training provided to national as well as local staff dealing with species management and conservation was limited (action 3). As described above, staff received some informal training through participation in species surveys with international organizations. This training and education is not well documented. A few project sites (Na Kai Nam Theun, Nam Et Phou Leui, Nam Poui, Nam Ha NPAs) received direct support from donors to periodically support their own staff training programs. From 1990 to 2000, DoF staff had many opportunities to receive training through the projects it collaborated with. However, after government reorganization in 2000, international collaboration with DoF became more limited and there were fewer opportunities for trainings. Action 5, develop capacity building through short and long-term training by focusing on specific skills identified through the training needs assessment has not been very well carried out since few needs assessments were carried out.

As is a common theme throughout this NBSAP assessment report, though there have been efforts to improve management capacity, these efforts have not followed a very strategic direction since a clear capacity development program was not developed. This should be considered in the 2nd NBSAP formulation.

d) Programme 4: Public Awareness and Involvement

Objective 1: Improve public awareness and education

DoF, NAST and DLF reported being involved in activities and campaigns to increase public awareness of biodiversity, including DoF and DLF's involvement in celebrations for Tree Planting Day, Biodiversity Day, Fish Release and Wildlife Day (relevant to actions 1, 2, and 3). DoF reported using various methods to spread messages about biodiversity conservation, such as developing cartoons, stickers, plays, reports and developing school curriculum related to biodiversity conservation. Other key awareness raising activities include the weekly televisions and radio shows that WREA and MAF each sponsor focused on environmental issues. Sometimes these shows focus on biodiversity conservation. Indirectly related to awareness raising on biodiversity conservation is the RIGHTS-LINK Lao project supported by SCD. The project focuses on public awareness on Land and Natural Resource issues (which often have a biodiversity component). The project aims to improve stakeholder capacity, knowledge and policy dialogue on land related issues. Posters and other promotion materials were developed and distributed to target people.

In terms of campaigns drawing a connection between biodiversity conservation and poverty reduction (action 1), DLF's work setting up fish conservation zones and the Poverty Reduction Fund's work (under MPI and the National Standing Committee for Poverty Reduction and Rural Development) creating fish conservation zones and production forests involve educating local people specifically on the connection between biodiversity conservation and poverty reduction.

Feedback from various government departments indicate that TV and radio have been used as the primary methods for easing communication between government and the public. As mentioned above, WREA and MAF each have regular television shows. NAST also reported regularly airing television shows and NAST, DLF and DoA reported using their websites, newspapers and magazines to reach the public (relevant to actions 4, 6 and 10). WREA reported that they have not been happy with their ability to educate the public. DoF, NAST and IUCN reported that they regularly invite the media report on biodiversity relevant topics.

However, in terms of encouraging understanding of biodiversity related issues amongst the media (action 10), no stakeholders reported organizing trainings or working on this. That said, IUCN reports that since Lao television in particular has now reported on so many of these stories, they now have a good understanding of these issues and effectively do their own background research on issues they do not fully understand. IUCN also reported that while some biodiversity topics are understood, the media does not have a clear understanding of the link between biodiversity conservation and poverty reduction. Media should be trained on this.

Production and distribution of field guides in Lao language (action 5) has included: TMRI's traditional medicine manual; NUoL's wild orchid guidelines; SNV's Natural Resource Management Toolkits, bamboo conservation toolkits, and agroforestry toolkit; DLF's field guides on animals and fisheries; SDC's guides to tree species in Xieng Khouang Province; and, NAFRI's guide to NTFPs.

Though this objective includes dissemination of CBD objectives to both public and private sectors (action 7), stakeholders consulted reported on reaching out only to the public. It seems that there have been limited or no efforts to talk to the private sector about CBD principles. In terms of reaching the public, stakeholders reported that by disseminating information through the media, local people have received messages about biodiversity conservation (relevant to action 8). However, there has been no specific emphasis put on disseminating information to indigenous people as required by action 8.

WREA reported that the State of Environment Report includes the status of biodiversity as recommended in action 9.

The primary examples of increased public awareness and education on ex-situ conservation are: the Arboretum at the Faculty of Forestry, National University of Laos, the privately owned botanical garden in Luang Prabang (established in 2009) and the national zoo. No stakeholders reported on organizing trainings for the public on ex-situ conservation.

Overall, progress has been made with reaching out the public through media campaigns and special celebrations. However, WREA reported that they have not been happy with their ability to reach the public. In the future, use of media to educate the public on biodiversity conservation may need to be critically assessed. Media should be provided training on the connection between biodiversity conservation and livelihoods. In addition, work is needed to look at avenues for accessing the public beyond TV and radio. Moving forward, an increased focus on reaching the private and indigenous people may be needed. A focus on training people on ex-situ conservation may also be required.

Obj. 2 Encourage and support public participation.

No stakeholders reported that specific public involvement guidelines were developed (action 1). Though DoF, NAST, DLF and others provided many examples of projects that include public participation in biodiversity conservation, they did not report on any steps that have been taken to specifically mandate or otherwise ensure public participation in project planning and design. It seems that though there is a strong preference for projects with public participation, there is not a formal process in place to ensure this (action 2).

Though no stakeholders reported developing nature-oriented groups (relevant to action 3), they did report encouraging public involvement in key events such as Tree Planting Day,

Biodiversity Day, Fish Release and Wildlife Day. In addition, WREA reported organizing trainings on the environment and biodiversity for pre-existing groups such as Youth Union Organization, the Lao Women's Union and student groups.

No stakeholders responded to action 4 on introducing public participation as a guiding principle for all natural resource management activities, likely because this action is broad and difficult to measure. The 2nd NBSAP should ensure that all actions are measurable.

DoF and SNV provided examples of increased village involvement in research and management activities relating to NBCAs. DoF reported that villages in and around NPAs are often involved in patrolling, reporting and boundary demarcation.

Some progress has been made under this objective. In the future, more efforts may be needed to ensure public participation in project planning and establishment of more nature-oriented groups.

Obj 3. Introduce biodiversity related studies to educational curricula.

NUoL reported working with WCS to develop a biodiversity and conservation course for masters level students at Faculty of Forestry, Faculty of Science and Faculty of Agriculture in 2009. NUoL reported that the curriculum needs to be improved to meet today's situation (action 1 and 2). SNV also reported helping development of Ecotourism curriculum and to revise and improve the NTFP curriculum of the Faculty of Forestry between 2005 and 2007. WREA reported that they were involved in designing environmental education curricula for primary and secondary schools, colleges and the universities (relevant to action 3 and 4) as part of both formal and informal study.

In the future, an assessment may be needed to look at the quality of the curricula, how much emphasis the curricula put on biodiversity conservation, and to what extent these curricula are actually being followed in schools.

e) Programme 5: Institutional and Legal Frameworks

Obj 1: Strengthen Institutional Cooperation and enhance inter-department coordination in the conservation and sustainable use of biodiversity.

Legal and institutional changes have been made to improve biodiversity management in Lao PDR. In the course of the 1st NBSAP, various natural resource laws related to biodiversity have been updated and revised (relevant to action 1). The first Forestry Law (issued in 1996) was revised in 2007. Aquatic animals and wildlife issues were removed from Forestry Law and added to a new Wildlife and Aquatic Animal Law. In 2009, the Fishery Law was developed. Agriculture Law and Environmental Law are currently being revised and the draft State Decree on National Protected Areas is awaiting approval. In addition, the National Agriculture and Forestry Institute has been involved in drafting biodiversity guidelines for EIAs with support from FAO. These guidelines will be incorporated into the pending National EIA regulation.

There have been efforts to clarify responsibility of various government divisions for various aspects of biodiversity conservation. DoF reported that the Division for Forest Resources Conservation has been mandated to manage: NBCAs, wildlife, plants, CBD (by acting as focal

point), CITES, and ASEAN- WEN (also by acting as focal point). The Agriculture Department is mandated to address agro-biodiversity and the Department of Livestock and Fisheries (DLF) is mandated to address livestock biodiversity including domesticated elephants. DLF also works on fish policy and implementation, with LARReC focused on fisheries research. , Academic and research institutes that do biodiversity relevant research include: NAFRI, NUoL, NSTI, and TRMI. Though the Ministry of Industry and Commerce and Ministry of Public Works has its own environmental and social unit which would theoretically address biodiversity concerns, the capacity of this unit is limited. There is no system in place to determine when MoIC should refer to other ministries, like WREA for advice on environmental or biodiversity concerns. This gap should be addressed in the future.

In order to improve government cooperation and coordination in biodiversity planning, in 2009, main responsibility for coordinating CBD implementation was transferred from WREA to Ministry of Agriculture and Forestry (relevant to action 3). The Minister of MAF was assigned responsibility for CBD and CCD. DoF was assigned National Focal Point and DFRC was assigned National CBD secretariat. At this time, under MAF, The Agro Biodiversity Initiative project (TABI) started working to support CBD implementation in Lao PDR. Under Outcome 1 of the project, IUCN Lao PDR and DoF collaborated. Key outcomes of the project to date include: an assessment of CBD institutional framework and implementation strategy (in 2010) and setting up inter sectoral technical groups to support implementation and delegate responsibility.

There have been efforts to address conservation and sustainable use of biodiversity into sector macro level planning through integration into many national strategies and programs (relevant to action 4). For example, biodiversity concerns have been integrated into the Rural Development and Poverty Eradication Program. Biodiversity concerns have also been integrated into the following strategies: National Environmental Strategy; 6th National Socio-economic Development Plan; National Food Security Strategy; Forest Strategy till 2020; National Sustainable Development Strategy; and, the Vientiane Declaration which set up biodiversity sub-working group.

Inclusion of biodiversity goals and principles into planning schemes and strategic plans at all level (action 5) has been very challenging. Though the strategies and programs listed above include elements of biodiversity conservation, many key aspects of biodiversity conservation are missing, such as access and benefit sharing (ABS). And since many government staff are not familiar with ABS and other technical aspects of biodiversity conservation, work on this is very unlikely to be implemented at all levels. In addition, especially when it comes to assigning lands for concessions, biodiversity does not seem to be a major concern.

In terms of harmonizing Lao laws with MEAs (action 6), the Lao National Assembly is currently in the process of approving a draft Biosafety Law that reflects requirements of the Cartagena Protocol on Biosafety which Lao PDR signed in 2004. Agriculture Law and Environmental Law are currently being revised to meet the requirements of international conventions.

Lao PDR has acceded to eight biodiversity relevant international environmental conventions CBD, UNFCCC, UNCCD, CITES, World Heritage, Convention on Migratory Species, Cartagena Protocol and RAMSAR. The most recent accession was the Ramsar convention on Wetlands in 2010. The Lao Government is currently arranging to sign the new UN protocol on Access and Benefit Sharing from the utilization of genetic resources, also known as the Nagoya Protocol (relevant to action 7).

Though progress has been made under this objective, in the future, biodiversity relevant responsibilities of each sector will need to be further clarified and detailed. In addition, more effort will need to go towards ensuring that the biodiversity planning reaches all levels (national to local).

f) Programme 6: NBSAP Implementation

Obj. 1 Implement the strategy and action plan through priority actions within established times.

Though there were many projects implemented between 2004 and 2011 that are in line with the objectives and actions laid out in the 1st NBSAP, the main shortcoming in implementation of the 1st NBSAP stems from the fact that no time frames, priority actions, estimated budgets, potential funding sources, or success indicators were determined (relevant to actions 1 and 2). In addition, no stakeholders responsible for implementing each of the actions were designated. As a result of this, biodiversity conservation projects tended to be donor driven rather than following the action plan and strategy laid out in the 1st NBSAP. And, with the lack of success indicators, it is challenging to assess the progress the 1st NBSAP has made.

It is imperative that the 2nd NBSAP address these issues.

Obj. 2: Secure sufficient funding for the NBSAP's implementation.

Overall, efforts to ensure sufficient and sustainable funding sources for NBSAP implementation have been limited. No stakeholders reported assessing the costs associated with NBSAP (action 1). Lack of cost estimates, coupled with lack of prioritization of actions made it difficult for government and donors to direct funds directly to NBSAP implementation.

That said, there have been some successes with increasing state budget for biodiversity conservation (actions 2 and 6). For example, the government set up the Forest Rehabilitation and Development Fund to support conservation activities in NPAs. The main source of income to the fund is logging activities and amount to approximately 300,000 USD per year. Small one year grants (less than USD 20, 000) for conservation activities can also be funded through submitting a proposal to the government Environmental Protection Fund. Another funding source accessed through the government (but funded through UNDP) is the GEF Small Grants under WREA/UNPD which provide USD 50,000 per project. Some funds have also been secured through the private sector. For example, some hydropower development projects such as Nam Theun 2 and Nam Leuk provide funds for NPA management and Lane Xang Mineral Co. provides funds for Siamese Crocodile conservation in Savannakhet province.

As reported by Lucy Emerton's PAD review (2002, prepared for LAO PDR NBSAP), external funds for biodiversity conservation dropped between 2000 and 2003. However, since 2005 funds have increased again and come from donors such as GEF, WB, ABD, JICA, GIZ, UNDP, SDC, EU, and IFAD. In order to provide more detail on funding a separate study would need to be undertaken.

Funds for training and research activities include (action 4) the Forest Rehabilitation Fund and Environment Protection Fund. In addition, MAF/ NAFRI has funds available for small research grants of about USD 5,000. Many training and research activities were donor supported. Much of the research conducted through NUoL and other government research institutes was

enabled through cooperation with international and regional institutes that could provide external funds.

The Lao government is pursuing various methods of strengthening the degree to which biodiversity is integrated into the operation of existing financial institutions (action 5). Some methods under consideration include: REDD, PES, Tourism Development Fund, Forest Development Fund, and Environmental Protection Fund.

In terms of funding specifically for NPAs (relevant to action 7), NPAs have tried to reduce their costs by involving local people in patrolling, boundary demarcation and working to prevent forest fires. In addition, in an attempt to be partially self-sustaining, some NPAs such as Nam Ha, Phou Khao Khouay, Phou Hin Poun and Xe Pian collect small fees from tourists who enter the NPAs for trekking. These fees help fund management activities. Many NPAs remain under funded and under staffed. Many still lack management plans.

There have some efforts to ensure that biodiversity goods and services are sustainably managed and sold at a fair price. For example, in 2009, IUCN worked in villages around Xe Pian NPA and Beung Kiat Ngong wetlands to improve management of malva nut, which is traded within Lao and surrounding countries. A patrolling system to prevent exploitation by outsiders and a marketing plan was put in place. Malva nut producers networked with middle men to ensure fair prices. Through this work, the price of malva nut has increased substantially and it is sustainably harvested. That said, there are many biodiversity goods and services for which this is not the case. Much more work is needed to ensure that consumers pay a fair price for these goods and services. (relevant to action 8).

Despite the various funding windows, funds were not sufficient to successfully carry out many of the actions laid out in the 1st NBSAP. While additional external funding sources should continue to be improved, the 2nd NBSAP should emphasize sustainable financing mechanisms and encourage GoL to provide funds for high priority actions.

Obj. 3: Ensure that the NBSAP is complemented by provincial and bioregional strategies and is supported by effective legislation where necessary.

See program 5: Institutional and Legal Frameworks.

g) Programme 7: International Cooperation

Objective 1: Ensure continued and effective international and regional co-operation with international governmental and non-governmental organisations in the conservation of biodiversity.

Department of Forestry reported that there was significant bi-lateral and multi-lateral cooperation (with international and regional government and non-government organizations) during the 1st NBSAP (action 1). DoF reported on collaboration with WWF, WCS, SDC, JICA, Sida, CITES, and ASEAN-WEN to name a few. DLF reported on bilateral collaboration between Lao PDR and Japan (on many subjects), Thailand (e.g. giant catfish), and Cambodia (e.g. Irrawady dolphin). Multilateral collaboration focused on ASEAN and South East Asia Fishery Development Center in Philippines (SEAFDEC).

DoF, NAST and DLF reported that GoL has taken steps to promote information sharing and exchange experiences (action 2). DoF reported that information is shared through the Asian Biodiversity Center (ABC) and that a clearing-house mechanism was set up for each member by ACB experts. NAST reported participating regularly in information sharing, especially through the BCH.

Regarding action 3, enhance international collaboration in research related to biological diversity, see Program 3, objective 2, action 4.

As demonstrated by the many examples of donor support for biodiversity conservation projects, especially from key large donors such as MRC, GMS, ADB and World Bank, biodiversity conservation is a significant part of donor portfolios (action 4). The government of Lao PDR helps to ensure that biodiversity conservation is a part of donor portfolios through involvement with ASEAN. The Director General of former WREA cabinet office is a chair of Asian Senior Official on Environment (ASOEN) and a member of the Governing Board of the ASEAN Center for Biodiversity. The GMS Secretariat under former WREA is a member of the ASEAN Working Group on MEAs and also works as national focal point for ACB. However, no stakeholders reported taking steps to ensure that impacts on biodiversity are considered when planning internationally supported projects and programmes that are not directly focused on biodiversity conservation (action 5).

During the 1st NBSAP, there were also efforts to transfer technology relevant to biodiversity conservation to local partners (action 6). For example, IUCN, WCS, WWF and others reported setting up technology transfer programs that enable government staff and researchers to upgrade their knowledge through on the job training and training courses.

Overall, regional and international collaboration both for biodiversity conservation projects and research, especially with international organizations, ASEAN and MRC was significant. In the future, more effort may need to go towards addressing regional transboundary biodiversity conservation issues.

Obj.2: Support and encourage the Lao PDR's participation in Multilateral Environmental Agreements.

Lao PDR has acceded to the following multilateral environmental agreements: CBD, UNFCCC, UNCCD, Ramsar, CITES, World Heritage Convention, Migratory Species Convention, Cartagena Protocol, ASEAN-WEN, and MRC agreement on Cooperation for the Sustainable Development of Mekong River Basin. In 2004, IUCN carried out a comparative assessment on Lao PDR's engagement in each MEA. This assessment should be updated (action 1). DoF reported that CBD, CCD and Ramsar have had the most progress. CBD is the only MEAs with an action plan for implementation (action 2). Other MEAs have been limited by a lack of funds to support implementation. Progress and funds for CITES implementation have been most limited. The fact that GoL is now preparing to sign onto the ABS Protocol, is an example of promotion of new agreements (action 3).

Lao PDR has a few examples of taking steps to maintain and strengthen the country's participation in multilateral efforts related to biodiversity in areas outside of national boundaries (action 4). These include: signing MOUs with Cambodia and Thailand on dolphin and giant catfish conservation, as well as, Lao PDR involvement with regional MRC facilitated discussions of the Xayaboury dam. In addition, Lao has signed a bilateral agreement with

Vietnam on Hin Nam Nor and Phong Nga Keobang NPAs, adjacent NPAs in the two countries and another agreement with China on Nam Ha NPA (in Laos) and the adjacent NPAs in Yunan.

The 2nd NBSAP should emphasize improving coordination between all of the MEAs. Communication and reporting efficiency could be improved by a single steering committee to liaise between each MEAs separate institutional structures. Ideally, government budget would be allocated for this.

IV. 1st NBSAP assessment summary

This detailed assessment indicates that key areas of progress in NBSAP implementation include 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/ESIA laws.

Key examples of limited progress include 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.

A common trend throughout this assessment is that while there have been individual projects that encourage biodiversity conservation in a variety of ways, it is difficult to estimate long term impact due to a lack of institutional strategic direction that would otherwise ensure consistency over time. For example, there are quite a few examples of research projects that report transferring skills from international to national researchers. However, no research institutions reported creating policies that require that projects be designed to transfer skills to local researchers. In addition, there was no clear indication of procedures in place to ensure that lessons from academic research were extended to real world implementation. Similarly, while there were many projects that reported involving participation of local people, no government department reported making this a requirement in their annual plans or strategies.

The assessment also made clear that much of the biodiversity conservation relevant work carried out since 2004 has been donor driven. For example, though there were many research projects carried out, neither NUoL nor other government research institutes reported making a list of priority research areas to which international researchers or donors could refer. This indicates that research was more influenced by donors than a pre-determined strategic

direction.

A few programmes were particularly difficult to assess. These included: public awareness and involvement; and human resource development. In terms of public awareness and involvement, stakeholders reported on efforts to reach out to the public through media and organizing special events (e.g. Wetlands Day) as well as efforts to integrate biodiversity issues into curricula at all levels. However, no detailed assessment has been undertaken to look at how receptive the public is to media campaigns, how closely curricula are followed and how well designed these curricula are. Thus, the assessment of this program provided above is based on limited information available. In terms of the human resource development program this is very challenging because detailed assessments of staff capacity under government departments have been quite limited. As such, the baseline is quite vague. That said, since in certain sectors it is widely known that capacity is very limited (e.g. it is commonly agreed that most NPAs are understaffed and their training opportunities are limited), it is likely safe to assume that any training opportunities provided represent progress.

Though funding was also challenging to assess, it is certainly clear that funds were the limiting factor in a variety of areas. For example, developed of management plans and implementation of those that were developed was so limited due to lack of available funds and resources. Lack of funds also inhibited implementation of CITES, creation of a national biodiversity database and monitoring environmental impacts of private investments.

Overall, this assessment is challenging in part because of shortcoming of the 1st NBSAP document itself. The 1st NBSAP does not provide any indicators or assign specific government departments and institutions to be responsible for implementing each action and monitoring progress. Nor does it outline a monitoring plan. It could likely have been more successful and directed donor funds towards implementation if it has also identified priority targets out of its long list of targets and actions and provided estimate budgets for work towards those targets.

V. Recommendations for the 2nd NBSAP

The 2nd NBSAP should be based off of lessons learned from the 1st NBSAP. Priority actions, potential funding sources, estimate budgets, success indicators and institution responsible for each target should all be identified in the document itself. Related to the issue of success indicators, targets should be specifically formulated so that they are measurable.

Given that the 2nd NBSAP is being formulated at a delay (ideally it would be finalized and implementation would have started in 2011, instead it will be complete in April 2012), it is important that it set interim targets. It will be easier to ensure progress if the 2nd NBSAP sets to targets to both 2015 and 2020. This should make it easier to keep work on track.

Given the recent changes in ministerial structure, the 2nd NBSAP should call for an update to the institutional structure related to CBD. This is essential for proper implementation of the 2nd NBSAP. When defining specific areas of responsibility within the structure, It is essential that institutions and the position of responsible persons be identified instead of simply identifying a responsible individual. This will ensure follow up even if individuals change positions. In addition, the 2nd NBSAP should call for government to create a steering committee to oversee coordination between all of the MEAs and call for government funds to the support this committee.

In addition, in order for the institutional structure to allow for mainstreaming of the NBSAP, collaborative strategies between different institutions and sectors are needed to discuss specifics of planning for cross-sector actions. This collaboration will be particularly important between academic research institutions and implementing agencies—it will ensure that academic research influences policy development and on the ground implementation. This will also encourage exchange and use of best practices. Under the Vientiane Declaration (2005), many cross-sector working groups were set up (e.g. working group on tourism, REDD, etc). Though these working groups were quite useful, they have faded out of time. If under the 2nd NBSAP funding and will can be found to restart them, they can certainly support NBSAP mainstreaming and cross- sector collaboration.

Though it has been difficult to assess progress in regards to human and financial resource development during the 1st NBSAP, it is clear that there is a large need to improve human resource capacity and mobilize funding for biodiversity conservation work. The 2nd NBSAP should address this through outlining very specific and measurable targets in this area. In addition for planning to mobilize external funds, the 2nd NBSAP should call on government to provide consistent public funds to top priority actions as well as to meet basic monitoring and capacity building needs. Without additional funds from government budget, it will be impossible to achieve sustainable financing.

In terms of biodiversity conservation priorities in the 2nd NBSAP, the document should continue the 1st NBSAP's work plan of working to protect ecosystems and key species. This can be achieved through engaging with the Program of Work on Protected Areas (PoWPA), designing and focusing on implementation of NPA management plans, and developing more strategic plans for key species conservation. A critical review of the objectives of the NPAs system, based on IUCN NPA categories will further support this work.

The 2nd NBSAP should also put a stronger focus on wetlands conservation, an emerging issue in Lao PDR, as well as ABS. Under ABS, responsibility for documenting local knowledge needs to be clearly defined, the role of customary law should be highlighted and an emphasis put on intellectual property. In addition, to address the fact that Land Use Planning and concession agreements do not always incorporate biodiversity concerns into decision making, there is a strong need for the 2nd NBSAP to mainstream the value of biodiversity into socio economic priorities and improve engagement with the private sector. Land Use Planning and allocation should incorporate sustainability criteria and include a particular focus on agrobiodiversity. This will encourage concessions to be granted in a more equitable manner in the future.

The information contained in this assessment report should provide a baseline from which to draft the 2nd NBSAP.

List of advisory team:

Mr. Khamphanh Nanthahvong, Director General of Department of Natural Resources Management, MoNRE;

Mr. Bouaphanh Phanhnavong, Deputy Director General of Department of Natural Resources Management, MoNRE;

Mr. Chris Flint, the TABI CTA,

Mr. Pheng Souvanthong, the TBAI Project Coordinator;

Mr. Latsamay Sylavong, IUCN Lao country representative.

List of technical team:

Mr. Sangvane Bouavong, technical staff in Department of Natural Resources Management;

Mr. Chanhthone Phothitay, technical staff in Department of Natural Resources Management;

Mr. Banethom Thepsombath, the IUCN Lao MEA Program Officer;

Mr. Touleelor Sotuky, the IUCN Lao CBD Liaison Officer;

Ms. Eliza Berry, the IUCN Lao Environmental Governance Unit staff.

List of Sectoral technical working groups for NBSAP implementation assessment:

No	List of working group members of NAFRI			
	Name and surname	Sector	Telephone	E-mail addresses
1	Mr. Vongvilay Vongkhamxao (Leader)	Planning Division	55604759	littlevong@yahoo.com
2	Mr. Soulivong Kongmanyvong	CAFRI	99769114	soulivong@nafri.org.la
3	Mr. Phetthongsay Soukhavong	NAFRI	22439193	sousouvanasing@yahoo.com
4	Mr. Nummakone Soukchaluen	Policy Division	55799555	Nammakon_nama@yahoo.com
5	Mr. Oudong Keomeephet	NAFRI/ RMD	558114595	Oudong.k@nafri.org.la
6	Mr. Manolack	CAFRI		
7	Ms. Khampheng Homsombath	LARReC/ NAFRI	55618086	Hsbkhampheng2010@gmail.com
8	Mr. Koukham Vilayhueng	NAFRI	22212798	Ku_kham@yahoo.com
9	Mr. Chaloun Yonithiphoun	NAFRI/FRC	22840755	chalounb@yahoo.com

No	List of working group members in the MEM Departments				
	Name and surname	Position	Sector	Telephone	E-mail addresses
1	Mr. Khamphanh Sihavong (Leader)	Deputy Head of Development and Project Monitoring Division	Ministry of Energy and Mining	55650298	skhamphanh@epd.gov.la
2	Mr. Souksavath Sithisack		Lao electricity	77822442	s.souksavath@gmail.com
3	Mr. Vongvilay Seesouk		Lao electricity	22402844	Deuxv_ss@yahoo.com
4	Mr. Somsanith Chanthanasin		EPD	55687438	Somsanith.epd@gmail.com
5	Mr. Suemkham Thommavongsa		Department of Electricity	22212619	nrmrmbm@laotel.com
6	Mr. Ounkeo Keopaserth		EPD	55662130	Onkeo.epd@hotmail.com
7	Mr. Sonevilay		EPD	2640253	

No	List of working group members of MoNRE				
	Name and surname	Position	Sector	Telephone	E-mail addresses
1	Mr. Yo Saysoulinh	Technical staff	National Land Management	22202501	yosaysoulinh@hotmail.com
2	Mr. Chanthy Indravong	Deputy Head of Policy and Law Division	Department of Environmental (MoNRE)	55607583	intravong@gmail.com
3	Mr. Ounakone Sayviliya	Technical staff, Policy and Law Division	Department of Water Resources (MoNRE)	22239223	ounakone@gmail.com
4	Mr. Viseuy Indavong	Technical staff	DoWR	99772857	visuendavong@hotmail.com
5	Mr. SAKhone Sayyasone	Technical staff	DoWR	22996396	Sakhone123@yahoo.com
6	Mr. Seething Bounynong	Technical staff	DoE	55032960	Sithong2009@hotmail.com
7	Ms. Lathdavanh Viengkhamson	Technical staff	DoP	22217568	Louy_Viengkhamson@yahoo.com

No	List of working group members of Traditional Medicine Institute(TRMI)				
	Name and surname	Position	Sector	Telephone	E-mail addresses
1	Dr. Mouachan Sayvue	Head of Pharmacognosy Division	TRMI	23384472	mouachanh@yahoo.com
2	Mr. Onvilay Souliya		TRMI	55829452	onevilay@gmail.com
3	Mr. Khamphanh Thepkaisone	Head of TMI	TRMI	55619563	khamphanh@yahoo.com
4	Mr. Khamfong Phommavong		TRMI	56862584	kpphom@yahoo.com
5	Mr. Manolack Vanhthanouvong	Head of Planning Division	TRMI	55685754	Vanthanouvong_manoluck@yahoo.com

No	List of working group members of MAF				
	Name and surname	Position	Sector	Telephone	E-mail addresses
1	Mr. Khamlien Norlasing	Head of Assessment and Planning Division	Department of Planning	22234689	nkhamliene@yahoo.com
2	Mr. Phathavong Vongsamphanh	Deputy Head of Planning Division	Department of Livelihood and Fishery	22233335	ptvkivor@yahoo.com
3	Mr. Viengxai Phothakoun	Technical Staff	National Agriculture and Forestry Extension Service (NAFES)	55521454	ptkoun@yahoo.com
4	Mr. Sybounue Vathanakhamphan		NAFES	55828499	V_Sibouneua@yahoo.com
5	Mr. Lair Manyvong		DoA	23012428	Lair.manyvong@yahoo.com
6	Mr. Savanhsiri Yanouvong	Technical Staff	Planning Division, Department of Agriculture	22221644	savanh_g@yahoo.com
7	Mr. Bouasavanh Viengsomebath		DLF	22050593	Viengsombathb@yahoo.com
8	Ms. Anousala Phongsavath		DLF	77480644	anousalaphongsavath@gmail.com
9	Mr. Phokhalasy		NAFES	55392293	Mn.Pho2011@yahoo.com

No	List of working group members of NUoL				
	Name and surname	Position	Sector	Telephone	E-mail addresses
1	Dr. Somechanh Bounphanmy	Head Faculty of Sciences	FoS/ NUoL	22215699	sbounphanmy@yahoo.com
2	Mr. Khamseng Nanthavong (Leader)	Head of Ecotourism Division	NUoL, Faculty of Forestry Sciences.	99650683	k_nanthavong@yahoo.com
3	Assoc. Pro, Dr. Vichit Lamsay		FoS /NUoL	22245515	vlamsay@yahoo.com
4	Dr. Viengsavanh Thammavong		FoF/ NUoL	22825681	nuad_ma@hotmail.com
5	Assoc. Pro, Dr. Bounthob Praxaysombath		FoS/NUoL	2221269	bounthob@hotmail.com
6	Mr. Bae Phiasay		FoES/NUoL	55592317	Pbae2002@gmail.com

No	List of working group member of Lao National Tourism Authority				
	Name and surname	Position	Sector	Telephone	E-mail addresses
1	Mr. Somxay Seephaserth	Deputy head of Planning and Development Division	Lao National Tourisms Authority	2221 1477	somxays@hotmail.com
2	Mr. Sonexay Chathavong	Head Pep of Department of Tourism Development	LNTA	22404208	sonexayvong@yahoo.com
3	Mr. Bounpheng Souliyanone		LNTA	22166666	yaliboun@yahoo.com
4	Ms. Sengmany Phalykhan		LATA	99634345	admin@latalaos.org
5	Ms. Kitthouna Santivong		Tourism Training Center	77528624	Kit_fujiyama@yahoo.com
6	Ms. Souphaluck		Tourism Training Center	22225899	Pyjane07@hotmail.com

No	List of working group members of Sciences Technology Research Institute(STRI)			
	Name and surname	Sector	Telephone	E-mail addresses
1	Ms. Kongchay Phimakong	STRI	23042746	kongchaybeechn@yahoo.com
2	Ms. Viengpasith Vanisaved	STRI	23174777	Viengpasiths@yahoo.com
3	Dr. Kosonh Sayphakadsa	STRI	59545606	kosonh@yahoo.com
4	Mr. Kousim Chathapanya	STRI	55700200	kousami@hotmail.com
5	Mr. Phuthanouthong Xaysombath	STRI	55606668	pxaysombath@gmail.com
6	Dr. Souriodong Soundara	STRI	55629190	souriodong@yahoo.com

Other projects; international and non-governments involved in formal and informal communication were:

- SNV Lao PDR
- Helvetas
- WWF
- WCS
- FAO
- JICA/FSCAP
- CliPAD
- UNDP
- ADB
- IUCN



INTERNATIONAL UNION
FOR CONSERVATION OF NATURE

LAO PDR COUNTRY OFFICE
082/01 Fa Ngum Road
Ban Watt Chan
P.O. Box 4340
Tel +856 21 216401
Fax +856 21 216127

www.iucn.org