



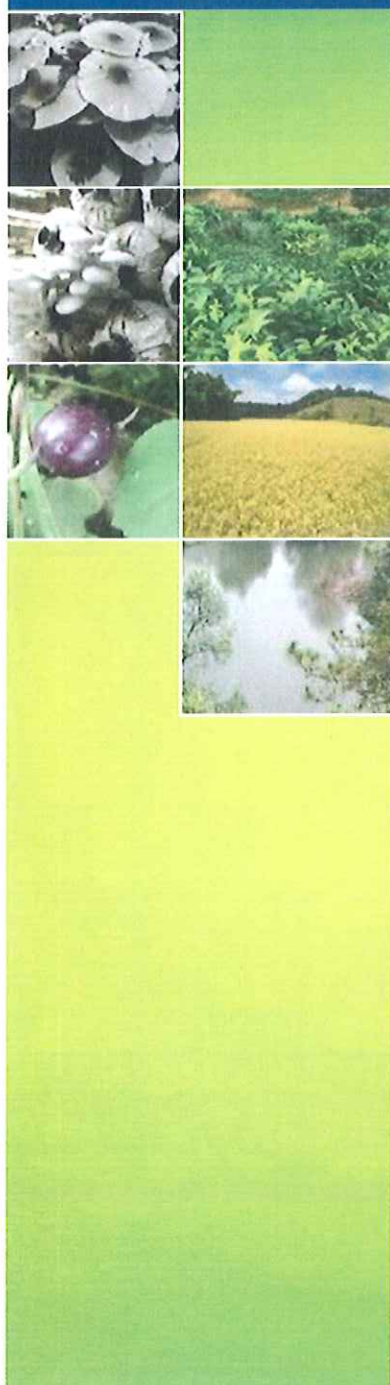
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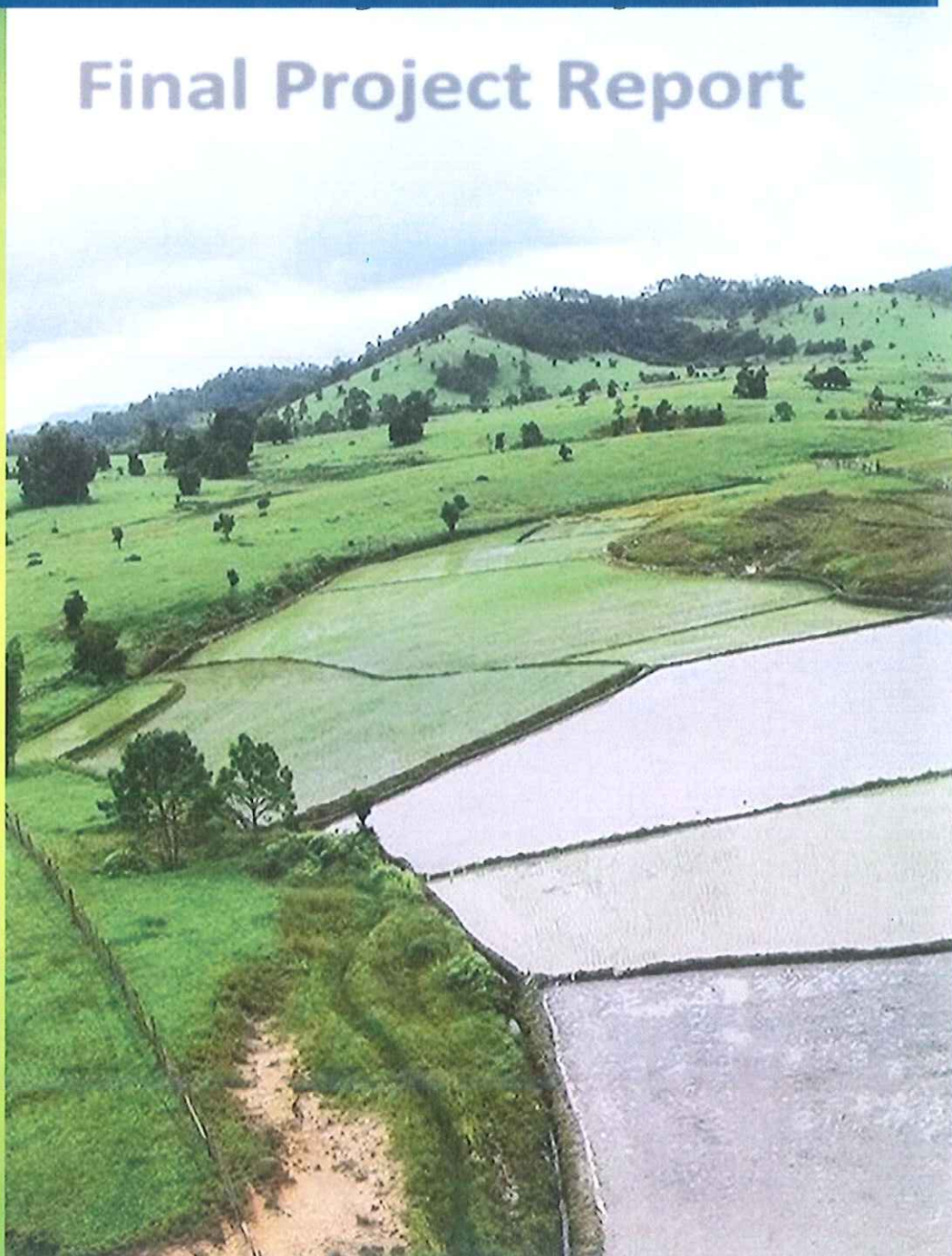
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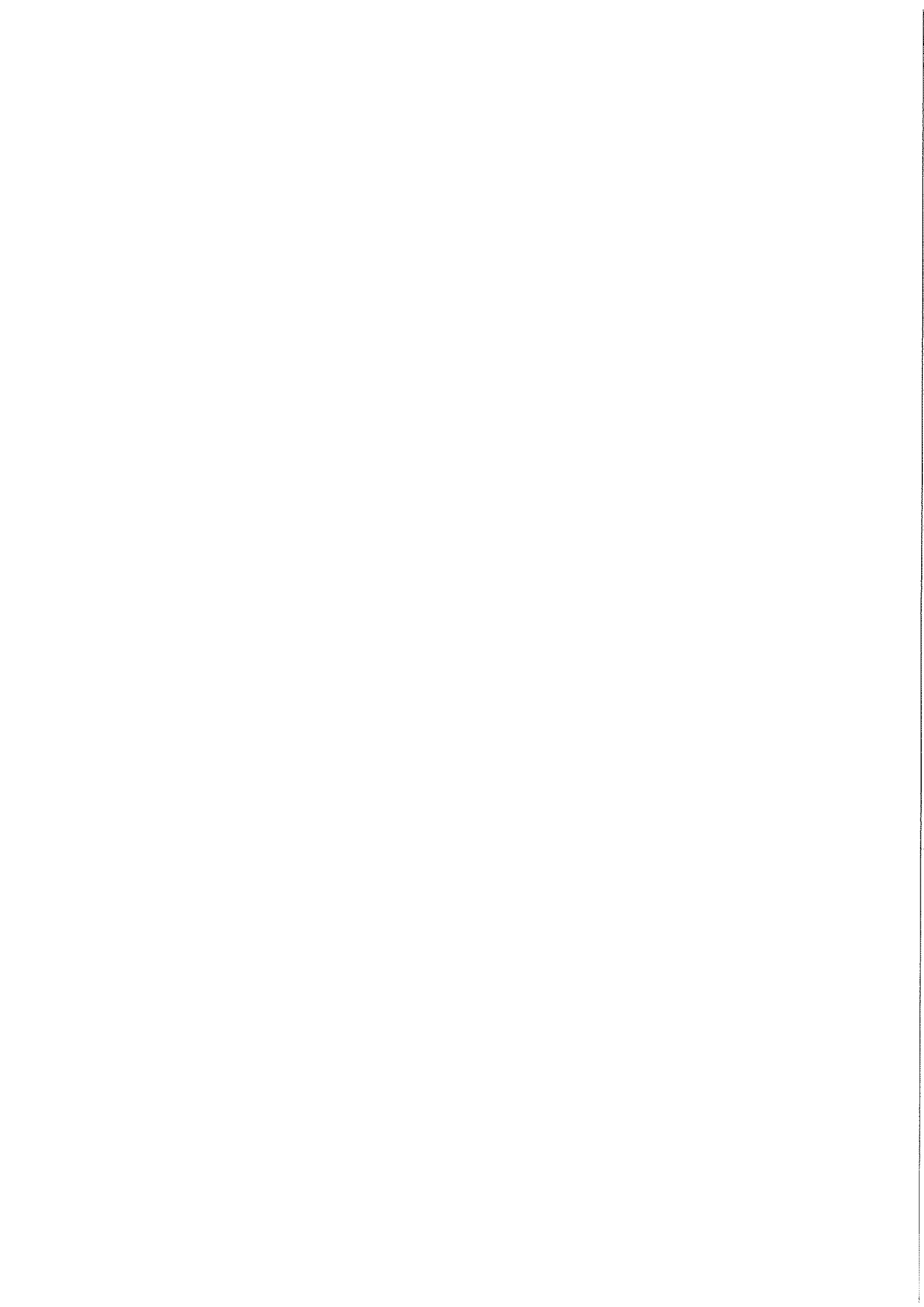
Mainstreaming Biodiversity in Lao PDR's Agricultural and Land Management Policies, Plans and Programmes (ABP project)

December 2016



Final Project Report





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List of abbreviations

ABDI	Agro-biodiversity Initiative
APM	Assistant Project Manager
ABP	Mainstreaming Biodiversity in Lao PDR's Agricultural Policies, Plans and Programmes (Agro-biodiversity Project)
ASEAN	Association of Southeast Asian Nations
BEI	Biotechnology and Ecology Institute (MoST)
CC	Climate Change
CTA	Chief Technical Adviser
CITES	Convention on International Trade in Endangered Species
CBD	Convention on Biological Diversity
DAFO	District Agriculture and Forestry Office
DFID	Department for International Development
DFRM	Department of Forest Resource Management (MoNRE)
DLF	Department of Livestock and Fisheries (MAF)
DoA	Department of Agriculture (MAF)
DoF	Department of Forestry (MAF)
DoPC	Department of Planning and Cooperation (MAF)
FALUPAM	Forest and Agricultural Land Use Planning, Allocation and Management
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer Field School
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoL	Government of Lao PDR
NGO	Non-Governmental Organization
IPM	Integrated Pest Management
ITM	Institute of Traditional Medicine
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	International Union for Conservation of Nature (The World Conservation Union)
LUP	Land Use Planning
LARReC	Living Aquatic Resources Research Center (NAFRI)
LURAS	Lao Upland Rural Advisory Service (Project)
MAF	Ministry of Agriculture and Forestry
MDG	Millennium Development Goal
MoH	Ministry of Health
MoIC	Ministry of Industry and Commerce
MoNRE	Ministry of Natural Resources and Environment
MoST	Ministry of Sciences and Technology
NABP	National Agro-Biodiversity Programme
NAFRI	Forestry Research Institute
NBSAP	National Biodiversity Strategy and Action Plan
NTFP	Non Timber Forest Products
NUoL	National University of Laos
PAFO	Provincial Agriculture and Forestry Office
PBSAP	Provincial Biodiversity Strategy and Action Plan
PDR	People's Democratic Republic
PPC	Plant Protection Center
SDC	Swiss Development Cooperation
Sida	Swedish International Assistance
SNV	Netherlands Development Organization
TOM	Technical and Operational Manager
TABI	The Agro-Biodiversity Initiative
TOT	Training of Trainers
UNDP	United Nations Development Programme
WREA	Water Resources and Environment Agency

Executive Summary

Lao PDR belongs to the Indo-Burma Biodiversity Hotspot and enriched with a great number of animals, plants, fungi and micro-organisms of which many are under threat. The Agro-biodiversity covers both cultivated and wild organisms, the eco-systems and the wider landscape the population depend on. Lao PDR has huge genetic pool of utilized crop `species (some 135) and varieties/land races (some 180), animal livestock species (some 40) and breeds (some 50), fish species (some 500), NTFPs (some 500), medicinal plants (some 1,700) as well as edible wild fungi (some 100 species).

The project document was signed between the Government of Lao PDR and UNDP in April 2010, with start-up during the middle of 2010. The inception report was approved in December same year containing meeting recommendations to pursue niche crops and the Integrated Pest Management/Farmer Field Schools approach, establishing common steering committee with TABI, and setting up a sub-sector Working Group on Agro-biodiversity.

The project has an office in MAF headed by a part-time National Project Coordinator, a position shared with TABI, and is supported by four staff plus a CTA. At district level in Phoukout and Pbonexay (Xiang Khouang and Luang Prabang provinces, respectively) two hired District Facilitators (DFs) supported field activities together with a part-time national ABP-DAFO District Coordinator, assisted by an accountant/administrative assistant. The DFs and accountant/administrative assistants were placed in DAFO Phoukout District and Nambor Technical Service Center in Phonexay District, respectively. In the middle of 2012, a Letter of Agreement was signed giving FAO the technical responsibility in project implementation including hiring short-term consultants and the CTA. In the middle of 2014 the project moved from the Permanent Secretary Office to Department of Planning and Cooperation with a part time National Project Coordinator shared with the TABI Project. Since, 2014, PAFO Coordinators were assigned and have supported the project on a case by case basis.

Both the project document and the inception report list a number of challenges to be addressed by the project including: little knowledge and awareness of agro-biodiversity conservation sustainable use; limited agro-biodiversity issues included in polices strategies, programmes and plans; insufficient ex-situ and in-situ protection of (agro) biodiversity; unstainable use and overharvesting of "wild biodiversity"; threats to agro-biodiversity by commercialization of agriculture including plantations; scarce knowledge of natural enemies and beneficial plants used in Integrated Pest Management; limited promotion of diversified and organic farming; non-transparent trading of agricultural commodities including NTFPs; and inadequate cross sectoral cooperation and capacity for planning and monitoring (with indicators).

The initial challenges were then transformed to an overall project strategy which emphasized the following: providing support to Government work related to international agreements such as the Convention of Biodiversity (CBD) and the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) including technical reports and inclusion of agro-biodiversity issues in Government policies, strategies and development plans; pursuing a programmatic approach and strong interaction between local and central levels on policies, planning, implementation and monitoring; involving all actors concerned with agro-biodiversity

i.e. farmers, public, private, NGOs, projects, etc.; performing bottom-up planning and implementation, based on indigenous knowledge and improved technologies for in-situ conservation/sustainable use; and providing longer term low cost support in same area to ensure lasting benefit.

The project objective and outcome indicator targets were achieved (A) compared to planned (P) targets i.e. improved management (P:100,000 ha; A: 112,300 ha), improved status of taxonomic groups (P:4; A: 4), GEF SP 2 Tracking tool score (P:5; A:5), new policies, strategies and plans with agro-biodiversity content (P:6; A:6), and farmers adopting skills and techniques promoted through FFS and farmer field days (P:1,000; A: 1,000).

At output level, seven of eight targets were achieved (A) compared to planned (P) i.e. established forum for discussion of Agro-biodiversity (Done in 2013), strategic papers by Sector Working Group (P:1; A:1), MAF staff with increased capacity to discuss Agro-biodiversity issues (P: 500; A:995), awareness tools developed (P: 4; A:6), Technical Service Centers with agro-biodiversity activities (P:4; A:6), village clusters with land use plans (P:4: A:5 with TABI), districts with in-situ conservation plans (P:8; A: 8), value added products (P:8; A:5), publications with analyses of economic forces and incentives influencing an agro-biodiversity product (P:1; A:2), and identified agro-biodiversity cross cutting incentives (P:3; A:3).

At national level the key achievement has been the preparation of the National Agro-biodiversity Programme and Implementation Plan (NABP II) containing a comprehensive presentation of existing agro-biodiversity, its eco-systems and landscapes, the trends, threats, and key stakeholders, documented in text and 30 annexes, a log-frame containing one objective, three outcomes, 12 outputs, 42 activities and some 162 sub-activities. The project has also been instrumental in the establishment of the sub-sector working group on agro-biodiversity.

At local level, a total 15 key activity areas were supported. At provincial level in Luang Prabang four Ethno-botanical Plots at Pha Tak Ke Botanical Garden were established and a Provincial Bio-diversity Strategy and Action Plan (PBSAP) were supported containing status of existing biodiversity and action plans until 2020 and 2025.

In Phonexay district the project has supported land use planning in 18 villages with TABI, supported five village groups of cultivating more the 11 tons of Oyster Mushrooms and established a mushroom lab, established 4 Fish Conservation zones, allocated 247 ha for Melientha Conservation and domesticated/ transplanted nearly 3,700 plants in upland fields, carried out 27 Integrated Pest Management (IPM)/Farmer Field Schools (FFS) in Rice and Vegetables with 398 graduated famers (43 females) and 210 students with help of the majority of trained extension (18), teacher (7) and farmer (4) trainers.

At provincial level in Xieng Khouang a PBSAP, containing than 200 plans, actions and targets and two in-depth studies on Matsutake and Wild Tea were prepared.

In Phoukout district, the key interventions covered land use planning in 26 villages with TABI, Wild Tea Conservation (34 ha) and Domestication of 97,000 raised wild tea plants by 63 families, survey on Aquatic Organisms in three villages utilizing 96 plant and animal species,

Organic Rice Cultivation and Certification in three villages, Fish Conservation by establishing 18 Fish Conservations Zones, 26 season long Integrated Pest Management/Farmer Field Schools in Rice and Vegetables for 613 farmers (48% females) using a majority of the TOT graduated extension staff (13) teacher (11) and farmer (7) trainers, Medicinal Plants Conservation in area of 323 ha and identifying 152 food plants and 107 medicinal plants used by local villagers and healers of which one species (*Bistorta palacea*) is new for Lao PDR, and surveys and registration (1,500 samples) of more than 500 Wild Mushrooms species.

The project collaborated with a number of national and international agencies i.e. the Department of Agriculture (Center for Plant Protection), the National Agriculture and Forestry Institute and the Living Aquatic Resources Research Center of the Ministry of Agriculture, the Department of Forest Managements of the Ministry of Natural Resources and Environment, the Biotechnology and Environment Institute of the Ministry of Science and Technology. In addition, technical assistance was received from officers at FAO Bangkok, closed collaboration and partnership was established with a number Agro-biodiversity projects and IUCN in Lao PDR and the project received valuable technical inputs during the working visits of IPM experts from Thailand, tea experts from China (South-South Cooperation) and a medicinal plant expert from Korea.

In terms of continuation of started-up interventions it is likely that the Agro-biodiversity knowledge and awareness provided by the project to the collaborators at central and local government officers will have a lasting effect. Similarly, the many IPM/FFS trained farmers gained confidence in crop cultivation and use of local agro-biodiversity and have now an increased awareness in agro-biodiversity conservation. Farmer groups on conservation and sustainable production of wild tea, Fish, Oyster mushrooms, Medicinal Plants and Melientha are continuing on their own, although minor follow-up support is likely to be given by other means, such as small grant GEF funds. Also posters, demo-gardens and other materials produced by the project have contributed to increased knowledge and awareness of agro-biodiversity issues. The NAPB-II activity plan is already been used by FAO and SDC and the sub-Sector Working Group on Agro-biodiversity will continue to meet bi-annually as a significant platform for dialogue and policy discussion through engagement of Government and development partners under the national Round Table Implementation Mechanism.

Project Title: Mainstreaming Biodiversity in Lao PDR's Agricultural and Land Management Policies, Plans and Programmes "(ABP project)"

UNDP Award ID	00060069
UNDP Project ID	0075435
Project Duration	11 April 2011 – 10 April 2016 (extended to 31 December 2016)
Implementing Partners	Department of Planning and Corporation (DoPC) of Ministry of Agriculture and Forestry (MAF)
National collaborating agencies	
Other UN/International collaborating agencies	FAO (CTA and short term consultants – though LoA)
Cost-sharing third parties	GEF (in-cash) UNDP (in-cash and in-kind) FAO (in-kind) SDC (in-kind/"parallel")
National Project Director/Project Coordinator	Mr. Xaypladeth Choulamany/Mr. Pheng Souvanthong
UNDP Programme Officer/Programme Analyst	Ms. Chitlatda Keomoungchnah
UNDAF, MDG's, Country Programme Outcome, and UNDP Strategic Plan	UNDAF Outcome 7: By 2015, the government ensures sustainable natural resources management through improved governance and community participation. Output 7.3: Communities are more engaged in the management of natural resources.
Other Partners	NAFRI of MAF PAFO in Xieng Khouang and Luang Prabang provinces DAFO in Phoukout and Phonexay districts MoNRE, PoNRE and DoNRE MoST and ITM of MoH IUCN PTK Botanical Garden DARWIN and TABI projects FAO Regional Rice Initiative and FAO IPM Programme DOAE and TEF (Thailand), CAAS and CAS (China)

Original Budget and latest revisions (USD)

Budget period	Original budget*			Latest revisions		
	GEF	UNDP	Total	GEF	UNDP	Total
2011 (Apr - Dec)	498,000	27,000	525,000	137,549	20,856	158,405
2012	498,000	23,000	521,000	392,591	25,088	417,679
2013	453,000	70,000	523,000	121,411	69,999	191,410
2014	408,000	23,000	431,000	618,373		618,373
2015	408,000	70,000	478,000	561,997	2,121	564,118
2016			-	433,080	157,134	590,214
Total Budget	2,265,000	213,000	2,478,000	2,265,000	275,198	2,540,198

*: Excluding in-kind/Co-financing: MAF (526,200), SDC (3 mill.), FAO (345,772) and UNDP (321,000)

1. Project Background

South East Asia belongs to the Indo-Burma Biodiversity Hotspot and contains nearly 20% of the world's biodiversity, but increasingly under threat.

Within South East Asia, however, the scientific knowledge of biodiversity is uneven and in Lao PDR the documentation of species, varieties and breeds within and outside the agricultural sector is very limited, except for fish species and medicinal plants.

The ABP project estimates that well over 100 crop and animal species are being cultivated and raised and between 1,000-2,000 animal, plant and fungal species being collected for food and other purposes. Further, in terms of the larger biodiversity the country is endowed with 8,000-11,000 species of flowering plants (incl. 1,700 medicinal plants), over 100 species of mammals, 700 species of birds and 166 species of reptiles and amphibians, 500 fish species and an

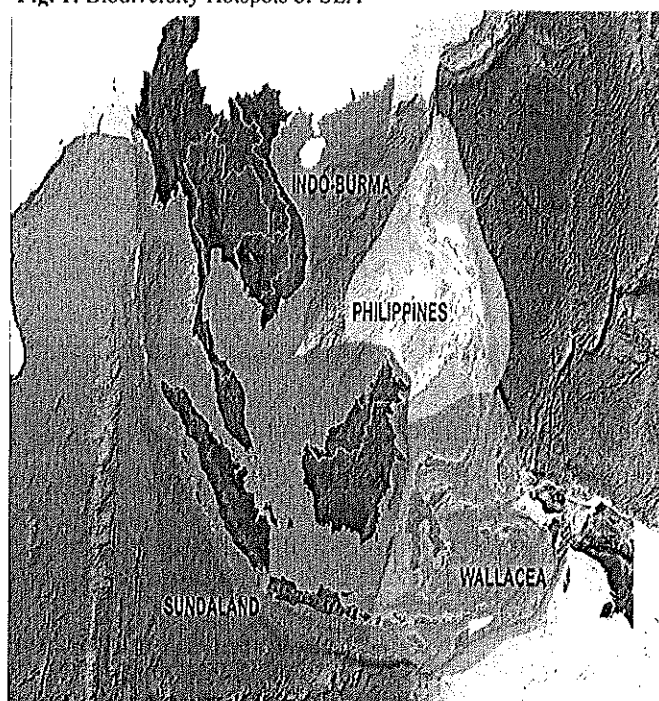
unknown number of fungal species. In addition, the country has a highly diverse ethno-cultural make-up involving many ethnic groups following different farming systems and livelihood practices, producing a rich cultural dimension to agro-biodiversity.

A number of agro-biodiversity species originate from other regions outside Lao PDR, thus in a narrow sense introduced species (exotic) or non-indigenous. These are mostly economic species such as grass carp, tilapia, improved maize, sesame, cassava, sugarcane varieties, Irish potato, coffee, rubber, eucalyptus, various fruit trees, vegetables, and animal breeds. Since long, many of these have been domesticated and today regarded as indigenous and constitute an important part of the upland farming system.

The project takes its departure from the Convention of Biodiversity which has three priority goals:

- a) Conservation of biological diversity (biodiversity),
- b) Sustainable use of its components, (including agro-biodiversity) and

Fig. 1: Biodiversity Hotspots of SEA



Source: Asean Biodiversity Outlook, 2010

- c) Fair and equitable sharing of benefits arising from genetic resources, including agro-biodiversity, is maintained, protected and sustainably used as a key to poverty alleviation and adaptation to climate change impact.

1.1 Definition of Agro-biodiversity

The project defined agro-biodiversity as all components of biological diversity of relevance to food and agriculture, and all components of biodiversity that constitute the agro-ecosystems – the variety and variability of animals, plants, macro-fungi and micro-organisms. Thus, the agro-biodiversity included both cultivated/raised species and wild organisms. Conservation and sustainable use of (agro) biodiversity, however, was also considered to comprise the eco-system services as part in the larger landscape.

1.2 GEF mid-term Technical Review

During the second half of the ABP Project, an independent Mid-Term Review (MTR) was commissioned by UNDP and the project was given a satisfactory rating at objective level whereas implementation efficiency and management were rated as unsatisfactory. The review resulted in 13 management related recommendations and six technical related recommendations. The management related recommendations stated the need to activate of the Steering Committee, adhere to audit recommendations, ensure adequate staff, state progress of co-financing partners, strengthening monitoring and oversight with timely monthly meetings, transparent and consultative planning, pursue common review of workplans of TABI and ABP projects (avoiding overlap), seek project results by end of 2016, and using GEF tracking tools. The technical recommendations stressed a need to revise project indicators and corresponding targets, increase information and awareness, documenting project results, carry out sub-evaluations of sub-projects, pursue more focus on economic incentives in crops, strengthening result focus, work on few key policies/strategies, and support Sub-Sector Working Group on Agro-Biodiversity in setting agro-biodiversity targets. All recommendations except the common planning with TABI (8) and external review of ABDI projects (13) were taken-up, see Annex 8.

1.3 FAO Technical support

As per project document, a close FAO collaboration has been pursued and in June 2012, a Letter of Agreement (LoA) was signed between MAF, FAO and UNDP outlining FAO's technical support to project implementation. The Agreement states that FAO takes key technical responsibility and become a close partner in project implementation providing the services by a Chief Technical Adviser (CTA) and national and international technical short-term consultants and other technical support by FAO technical officers, based at Headquarters and the Regional Office in Bangkok. The total LoA budget for the CTA, national and international consultants and support costs is US\$884,326. The cost of the LoA is borne by the GEF grant. An updated of completed, ongoing and planned short term TA is provided in Annex 6.

1.4 Government and project reorganization

The 2012 re-organization of the old Water Resources and Environment Agency (WREA) and MAF resulted in several departments being moved to the new Ministry of Natural Resources and Environment (MoNRE), ABP cooperated with the Department of Forest Resources Management (DFRM) and CBD focal point for comments and inputs to the National Biodiversity Strategy and Action Plan, the report to the CBD Secretariat as well as the formulation of the Provincial Agro-biodiversity Strategy and Action Plans for Xieng Khouang and Luang Prabang Provinces.

With effect from beginning July 2014, the ABP moved from the Permanent Secretary Office to the Department of Planning and Cooperation (DoPC). The new National Project Coordinator (NPC) was coordinator for both TABI and ABP projects.

As at May 2016, all forestry sub sectors has moved back to MAF (probably including the CBD focal point), leading to some initial uncertainties on roles and responsibilities not least at provincial level.

The project operated at central level with an office in MAF, supported by an Assistant Project Manager (APM), a Technical and Operations Manager (TOM), a Project Accountant, a Driver, and a Chief Technical Advisor (CTA), all under the guidance of a Government staff including the National Project Coordinator. At district level a hired District Facilitator (DF) coordinated field activities together with a part-time national ABP-DAFO District Coordinator, assisted by an accountant/administrative assistant. The DFs and accountant/administrative assistants were placed in DAFO Phoukout District and Nambor Technical Service Center in Phonexay District, respectively. Technical and coordination inputs are provided by a PAFO Coordinator on a case by case basis.

2. Key challenges

The project document and the inception report outlined a number of challenges which are summarized below:

- Little inclusion of agro-biodiversity considerations in national policies, strategies, programmes and plans;
- Limited linkages between conservation and sustainable use of biodiversity;
- Limited knowledge of agro-ecological and farming system approaches;
- Lack of awareness on benefits of the rich Lao (agro) biodiversity – as a common good;
- Little knowledge and few studies on utilization and detailed recording of agro-biodiversity in rural areas including potential benefits from eco-tourism;
- Insufficient ex-situ and in-situ protection of (agro) biodiversity;

- Unustainable/overharvesting of “wild biodiversity”;
- Threats to agro-biodiversity by commercialization of agriculture including plantations and replacing traditional varieties with few modern varieties, mono-cropping and uncritical/ overuse of pesticides and fertilizers;
- Limited knowledge of natural enemies and beneficial plants used in Integrated Pest Management (IPM);
- Limited extension knowledge on environmental friendly farming (IPM, soil fertility improvement, Conservation Agriculture, etc.);
- Limited farmer skills, knowledge and experience related to market development, contracting and grouping;
- Non-transparent trading of agricultural commodities including NTFPs;
- Increasing consumer demand for modern few food items and little recognition of nutritious values of “natural products”;
- Inadequate interventions to support increasing demand for organic products, fair trade, NTFP & ecotourism;
- Limited acknowledgement on carbon sequestration and watershed protection to compact climate change; and
- Inadequate cross sectoral cooperation and capacity for planning and monitoring (with indicators).

3. Project overall goal and objective

The overall goal of ABP was:

- Conservation and sustainable use of biodiversity resources in agro-ecosystems in Lao PDR for the attainment of food security and sustainable economic development.

The project objective was:

- To provide farmers with necessary incentives, capabilities and institutional support framework to conserve agricultural biodiversity (ABD) within the farming systems in Lao PDR.

In other words, the ABP project holistically supported a wide range of agro-biodiversity issues including the strengthening of policies and strategic interventions in biodiversity in agro-ecosystems through long-term capacity development across the involved sectors. The project also included planning, implementation, monitoring, awareness building, communication, production, extension and research, and market support.

3.1 Project inception

A draft inception report was prepared during the second half of 2011 and presented to key stakeholders at the inception workshop meetings, 27-29 November 2011. Based on the feed-back from the workshop, the final inception report was prepared. The key recommendations included: pursuing Land Use Planning (LUP), strong local ownership, niche produces/products, market opportunities and the IPM approach; establishing common steering committee with TABI; and setting up sub-sector Working Group on Agro-biodiversity (see Annex 5).

3.2 Project strategy

The project strategy was pursued under the following headings:

a) Overall strategy

Addressing (agro) biodiversity in a larger landscape including local, regional and global impacts on bio-diversity.

- Synchronizing international agreements with Government policies, strategies and development plans related to (agro) biodiversity and its relation to climate change, livelihoods, food security, nutrition, and sustainable development.
- Pursuing a programmatic approach and strong interaction between local and central levels on policies, planning, implementation and monitoring.
- Pursuing integrated approach to mainstreaming agro-biodiversity through capacity & skills development, coordination and awareness.
- Involving all actors concerned with agro-biodiversity i.e. farmers, public, private, NGOs, projects, etc.
- Performing bottom-up planning and implementation, based on indigenous knowledge and improved technologies for in-situ conservation/sustainable use.
- Providing longer term low cost support in same area to ensure lasting benefit.

b) Coordination, complementarities and collaboration with other projects

The ABP Project made use of higher-level policy dialogue through sector working groups and the UN system whereas the activities at the local level, the ABP builds on TABI's and other projects' successful activities. Thus, much attention was paid to avoid overlaps and make synergies.

Incremental studies (where needed) and capacity assessments and development was pursued as on-the-job training as integral part of the identification and implementation of agro-biodiversity friendly improvements.

Focus on underutilized niche species, crops and products were carried out in close collaboration with the farming communities. Emerging markets and options for Organic Agriculture, Fair Trade, ecotourism, domestication of NTFPs, and home gardens were looked into. Lessons learned from similar interventions and research (e.g. funded by Sida, SDC, SNV, GIZ, and FAO), and other means were carried out before embarking on further studies.

c) Central level

Provision of inputs to emerging policies, strategies, plans and programmes including the 2nd NBSAP and piloting Provincial Strategy and Action Plans (PBSAPs). On medium and longer term the ABP project supported local-central linkages with regard to agro-biodiversity planning, implementation and monitoring.

d) Field level

Capitalizing on TABI's studies, interventions (sub-projects) and lessons were learned including a tool kit on participatory Forest and Land Use Planning (pFLUP) identify pilot villages either building on existing village or support the existing teams in preparing new and/or finalizing all steps in the land use planning process. Further, ABP project capitalized on the many TABI pilot initiatives (projects) were carried out in Xieng Khouang and Luang Prabang provinces.

e) Identification of specific interventions

Agro-biodiversity interventions followed a holistic approach by taking views of traditions/ culture, consumers, markets, and associated players including farmers, village heads, local and central governments, research, extension, NGOs and private sector, with due considerations to the proposed interventions in ongoing land use planning process, as well as biodiversity of regional significance.

f) Working with farmers over a longer period - Farmer Field Schools

The ABP Project pursued the season long Farmer Field Schools (FFS), Integrated Pest Management (IPM) and integrated farm/community management approaches including the steps of community organizing/selection of crops/animals, training of trainers, discovery learning plots/ demonstrations, usage of local biodiversity, farmer to farmer visits/Farmer Field Days. The end result was more skilled, knowledgeable and confident farmers that can solve various challenges towards a more environmental friendly farming system and income generation.

g) Cross-cutting issues

The ABP Project assessed the gender issues and promoted gender equity in policies, strategies and programmes as well as in field implementation, while respecting cultural and ethnic gender roles and traditions. Where possible, women's interest and economic contribution to household economy was supported and at least 50% of direct beneficiaries were targeted. Further, TA and staff gender

equity were pursued, project data were gender segregated and gender issues were included in TORs.

The traditional knowledge associated with the multiple use of the natural resource base by various ethnic groups (mainly Khmu and Hmong) in Xieng Khouang and Luang Prabang is steadily disappearing. Based on the priority setting by users, the ABP Project supported sustainable use of existing and under-utilized species to support their livelihood.

The nutritional level and practices in many upland villages were often quite low and called for increasing coordination among the health, agriculture, education and other sectors. The ABP project facilitated such coordination by improving agro-biodiversity and including human nutrition aspects in the curriculum in Farmers Field Schools (FFS).

4. Project performance and key results

Overall, during the project period, it is apparent that the Government has put much more emphasis on sustainable use and conservation of Agro-biodiversity. This can be seen by the establishment of the Agro-biodiversity sub-sector working group – and not just a subsidiary activity under other sub-sector working groups. In other words, agro-biodiversity and natural resources management issues received much more attention, including a drive for organic farming. Also the recent Prime Ministerial Decree banning illegal logging has shown that the government is very committed to protection of this sub-sector.

4.1 Status Summary at objective level

As a result of the Mid-Term Review two additional objective level indicators were added (see Table 1).

Table 1. Achievement of project objective

Objective	Indicator	Target	Achieved
To provide farmers with the necessary incentives, capabilities and supporting institutional framework to conserve agro-biodiversity within the farming systems of Lao PDR	1. Area under improved management for conservation of agro-biodiversity directly and indirectly influenced by the ABP project [Revised]	100,000 ha	102,300 ha
	2. Number of agro-biodiversity taxonomic groups with improved status in the two pilot districts [New]	4	4
	3. GEF SP-2 Tracking Tool Score for policy and regulatory frameworks [New]*)	5	5

*) 1: Capacity to conceptualize and formulate policies, legislations, strategies and programs. 2: Capacity to implement policies, legislation, strategies and programs 3: Capacity to engage and build consensus among all stakeholders. 4: Capacity to mobilize information and knowledge. 5: Capacity to monitor, evaluate, report, and learn.

4.1.1 Improved management and conservation (obj. indicator 1)

The ABP project contributed to the ongoing land use planning at the verification process through SPOT 6 Archive Imagery of 2,900 km² in 44 villages in Phonexay and Phoukout districts, covering a total area of 266,000 ha of which 174,000 ha are community forest land. With the ABP project taking some 50% of the costs (excluding international TA), the ABP project contribution to forest land conservation area can be set to 87,000 ha. Further, the Provincial Biodiversity Strategy and Action Plan for Xieng Khouang Province resulted in conservation of three district based conservation areas at a total of 5,000 ha and tree plantations of approximately 20,000 ha, of which the project can claim to have 25% influence (i.e. 5,000 ha). Further, through the support to the formulation process of PBSAP for Luang Prabang Province another 5,000 ha will have increased conservation focus in addition to the 300 ha of Melientha, Wild Tea and Medicinal Plants Conservation areas.

4.1.2 Improved status of agro-biodiversity taxonomic groups (obj. indicator 2)

Oyster mushrooms (agaric group) and Melientha (pak wan - *Melientha sauvis* - leaf and flower vegetable from nearly 4,000 domesticated forest trees) gained significant foothold in Phonexay District to the extent, that the project expanded the activities to one additional village.

In Phoukout district, the wild edible and poisonous mushrooms have drawn particularly attention including the world famous and expensive "Matsutake" mushroom. Further, in Phoukout District, domestication of wild tea the ABP project supported transplanting of 96,000 seedlings as well as identification of two tea species i.e. *Camellia sinensis* var. *assamica* and *Camellia kissi* var. *confusa*. The latter species is used in China for oil extraction and a new species record for Lao PDR.

During the medicinal plants survey, another species was recorded (pom kam ter - *Bistorta palaecea* - locally used to treat diarrhea and stomach ache). This plant is also a new record for Lao PDR.

Domestication of Melientha trees (leaves used as vegetables) is a new intervention in Lao PDR.

4.1.3 Strategies and sub-sector scores (ref. GEF SP-2 tracking tools) (obj. indicator 3)

During the project period, agro-biodiversity was given increased attention, discussed at sector working group/roundtable meetings and directly or indirectly emphasized in numerous government strategies and plans. These include:

i) 8th National Socio-Economic Development Plan: E.g. output 1 of outcome 3: Farmer management of natural resources.

ii) MoNRE/MAF National Biodiversity Strategy and Action Plan 2025: Agro-biodiversity having increasing focus agro-biodiversity in agricultural sector.

ii) *MAF: Agriculture Development Strategy 2020*: Promoting Environmental friendly market integrated Agriculture and Natural Resources Growth to ensure that agricultural practices are ecologically sustainable, maintain production potential and quality of agro-biodiversity.

iii) *MAF/NAFRI National Agriculture and Forestry Research Strategy (2015)*: New technical research area on Agro-biodiversity, which highlights NAFRI's commitment to research in agro-biodiversity.

iv) *MAF Lao PDR National Agro-biodiversity Programme (2016)*: The new ABP supported National Agro-biodiversity Programme is a central document in providing up-to-date comprehensive information on current status, trends, threats, key players with six farming (eco)systems, and interventions under three outcomes, 12 outputs, 42 activities and 182 sub-activities.

v) *MAF: Upland Development Strategy (2015-20)*: Biodiversity conserved for eco-tourism as one of four objectives with high emphasis on diversified farming, use of indigenous species, etc.

vi) *MoNRE: Natural Resources and Environment Strategy 2015*. Agro-biodiversity is treated as cross cutting and under various headings including Forest Resources and Biodiversity Management.

Level 5 of the GEF SP-2 GEF SP-2 tracking tool for management of agro-biodiversity/ protected areas foresees an achieved capacity to monitor, evaluate, report and learn in the agriculture, forestry and fisheries subsectors. Overall, the capacity development during implementation period is rated as satisfactory, though there is still room for improvements and mainstreaming.

4.2 Status at outcome level

4.2.1 Legal framework outcome support (Outcome1 Indicator 1)

The mainstreaming of biodiversity considerations into agricultural and land management legislation, including the development and promotion of policies that encourage and support sustainable use of agro-biodiversity in agricultural landscapes was carried out on various fronts as follows:

Table 2. Achievement of target of indicator for Outcome 1 (UNDP: outcome equals output)

Outcome 1	Indicator	Target	Achieved
National policy and institutional frameworks for sustainable use, and <i>in-situ</i> conservation of biodiversity in agro-ecosystems.	Number of new national plans, policies, laws, strategies, and guidelines with agro-biodiversity concerns.	<i>End Target: 6</i>	<i>Achieved: 6</i>

i): Spearheaded by the Northern Upland Development Programme, the ABP Project provided significant input to the **Upland Development Strategy** (approved in July 2013), including a new objective covering agro-biodiversity. As for the subsequent **Implementation Plan** and **Investment Plan** the project also provided agro-biodiversity related inputs.

ii) Led by the Ministry of Natural Resources and Environment (MoNRE) and facilitated by IUCN the

ABP project has been a key partner for the preparation of the second **National Biodiversity Strategy and Action Plan (NABP)** to 2015. The ABP project support was provided from the inception in 2013 until the final draft in September 2016 and included comments and suggested corrections at various drafts as well as financing a consultation workshop for Northern Provinces in June 2014.

The project also provided **inputs to the Aichi Targets** in the 5th National Report to the CBD.

iii) The formulation of the **Biodiversity Strategy and Action Plan for Xieng Khouang Province (PBSAP-XK)** commenced in early 2013 under the leadership of the Provincial Department of Environment and Natural Resources (PoNRE) with IUCN providing secretarial assistance. The PBSAP was approved by the Province in May 2013 and the very challenging translation into English was eventually done by the middle 2016. An implementation status meeting was carried out with all stakeholders in August 2016 with significant inputs from the ABP project team.

iv) In 2014, the ABP project provided comments to the **National Nutrition Strategy** (Ministry of Health) and in 2015 to the **Natural Resources and Environment Strategy 2025** (MoNRE). As a result agro-biodiversity issues were included in the two documents.

v) A key delivery of the project was the assistance to NAFRI in preparing the second **National Agro-biodiversity Programme (NABP II)**, which started in June 2014. The draft NABP II document was presented to the Government in May 2015 at a stakeholder consultation workshop and the final draft in June 2016 at the sSWG Meeting on ABD. The NABP II contains a comprehensive presentation of existing agro-biodiversity, its eco-systems and landscapes, the trends, threats, and key stakeholders, documented in text and in tables in 30 annexes, and references were made to more than 100 documents and sources. Opportunities and strategic considerations are an integral part of the NABP-II, reflected in a log-frame containing one objective, three outcomes, 12 outputs, 42 activities and some 162 sub-activities.

Table 3. Achievement of output targets under Outcome 1

Output	Baseline	Indicator (updated)	Target	Achieved
1.1 Integrating agro-biodiversity into policies.	Land use policies and legal instruments do not include focus on biodiversity (especially agro biodiversity), b) Emphasis on agro-biodiversity in BD strategy and action plan (N/BSAP) is weak, c) Agriculture Law does not incorporate emphasis on biodiversity, including ABD, and d) Integration of biodiversity related criteria into ESIA guidelines are poor	Number of National policies with Agro-biodiversity content [DELETED] (See outcome 1 indicator)	NA	NA
1.2 Establishing coordination mechanism for focussed agro-biodiversity discussions	Currently, there is no formal coordination mechanism for agro biodiversity conservation	Number of yearly agro-biodiversity inter-sectoral coordination meetings [DELETED]	NA	NA
		Number of strategic inputs to the policy and legislative process produced by the inter-sectoral working group, as demonstrated through policy papers or other forms of strategic inputs to the	1	1

		development of policies such as the NABP II [NEW]		
		Establishing forum for discussion of Agro-biodiversity issues [NEW]	Done	Done
1.3 Enhancing institutional capacity for agro-biodiversity	Institutional and staff capacities of MAF to mainstream bio-diversity into agriculture and land use policies are low.	Number GOL officers actively participating in meetings and training on agro-biodiversity [Revised]	500 officers	995 officers
1.4 Increased understanding and awareness of agro-biodiversity and its significance among key stakeholders	a) Land use policies and legal instruments do not include focus on biodiversity (especially agro biodiversity); b) Emphasis on agro-biodiversity in BD strategy and action plan (N/BSAP) is weak; c). Agriculture Law does not incorporate emphasis on biodiversity, including ABD, and d) Integration of biodiversity related criteria into ESIA guidelines are poor	Number of tools (FFS, info & awareness materials) developed to support and enhance incorporation of agro-biodiversity into national and institutional frameworks issues are discussed [Revised]	6 tools	10 tools

vi) By end of 2016, the project (technical part commissioned to IUCN) assisted the Provincial Government of Luang Prabang in preparing the **Provincial Biodiversity Strategy and Action Plan (PBSAP)** with similar structure than the PBSAP of Xieng Khouang Province.

Outcome 1 of ABP comprised 4 outputs with corresponding indicators and targets, see Table 3.

4.2.1.1 Support to strategies plans and programmes (indicator canceled)

See under outcome 1.

4.2.1.2 Agro-biodiversity Coordination (output indicator 1.2)

a) Sector Working Groups on Agriculture and Rural Development and Environment and National Resources

The ABP project team participated in some of the semi-annual meetings of Sector Working Group meetings on Environment & Natural Resources (SWG NRE under MoNRE) and on Agriculture and Rural Development (SWG ARD under MAF). Apart from reporting on progress of sub-groups, various topics were taken-up and government and development partner initiatives were presented. In close collaboration with UNDP and FAO, the ABP project stressed the importance of diversifying agriculture for making better use of Lao's rich biodiversity as well as the ecosystem services for which the rural population much depends on. Among others, the group discussed the role of the agriculture for improved food security and human nutrition, promotion of native animal livestock and under-utilized crops and NTFPs.

b) Sub-sector Working Group on Agro-biodiversity and other Sub-sector working groups

The project was instrumental in establishing the Sub-Sector Working Group on Agro-biodiversity (SSWG ABD under the SWG Agriculture and Rural Development), which was launched in September 2013 and had 1-2 yearly meetings. Issues discussed included rice, medicinal plants, bamboo, rattan, taxation of exported NTFPs, ASEAN market opportunities effect of pesticide use on non-targeted organisms. The preparation of NABP-II was also based on recommendations from this forum.

Further, the project actively participated in sSWG meetings on Agro-business and Farmer Groups as well as on Uplands. Presently, the latter is less active.

An informal suggestion from NAFRI to establish and coordination committee covering all conventions and treaties related to agriculture, environment and natural resources (such as CBD, ITPGRFA, RAMSAR, CITES and CC), unfortunately, has not yet materialized.

At local level, provincial and district authorities met regularly to discuss development issues including progress of ongoing project, but unfortunately little feed back to the project team was provided and somewhat constrained a coordinated approach to local interventions.

4.2.1.3 Capacity development

By organizing meetings and carrying out several other interventions at central and local levels, the project was able to bring forward the importance of sustainable use and conservation of agro-biodiversity. These events included kick-off/introduction meetings of interventions (e.g. IPM, P/NBSAPs/laws and awareness posters,) seminars and workshops (e.g. "Access to Benefit Sharing" and ITPGRFA,, CBD, LUP guidelines), special events (e.g. World Food Day and Biodiversity), local progress/assessment meetings (e.g. ABDIs/PBSAP-XK) and final assessment meetings (ABDIs) and (Sub) Sector Working Group Meetings. The technical capacity development of local staff was mainly done as on-the-job training including Training of Trainers (TOT) in IPM of more than 70 extension, teachers and farmer trainers. To some extent, there was overlap of officers attending these events, however, new agro-biodiversity issues was continuously discussed.

4.2.1.4 Communication tools

As outlined in the Communication Strategy and Communication Strategy, a number of tools was used to communicate and awareness raise agro-biodiversity issues:

i) Production information/guides for farmers

A highly illustrative oyster mushroom production steps (42 pp.) and Melientha cultivation guide (4 pp.) were produced.

ii) Demonstration plots for farmers and the public

Demonstrations plots were pursued at several fronts. Under the IPM programme, demonstrations were an essential part of the curriculum, both at TOT (2 sessions), at the Farmer Field Schools (52 sessions) with graduated farmers (total 1,111), at Farmers Field Days (4 events) for neighbouring farmers (612) and students (107). Various farm cultivation and agro-biodiversity related techniques were demonstrated such as physiological stress of crops, natural enemies of pests, composting, bio-extracts as bio-insecticides, rice-fish and cricket production, role of surrounding biodiversity, etc.

At Pak Tak Ke Botanical Garden in Luang Prabang, four ethno-botanical plots with collection of plants to cure digestion problems, skin diseases, disorders, and fractures were established totaling 99 species and 1,200 plants, targeting the public and local students. At the district health office 16 medicinal plant species (60 seedlings) were provided for public display.

iii) Mass media and internet on special events

Various mass media tools were utilized such as newspapers (success stories on aquatic organisms, oyster mushrooms, wild tea, biodiversity day, launching of ABP and sub-projects/ key events) and TV (steering committee meeting, sSWG ABD, Biodiversity Day, World Food Day), and YouTube (video IPM Rice and biodiversity day). The FAO Representation and the UNDP Country Office have consistently uploaded stories and events on UNDP's website, Facebook Page and through Twitter accounts.

iv) Posters and photo exhibition

A set of 18 different posters (60 copies each) on environmental and biodiversity protection issues were prepared and distributed to the two target provinces, at nationally organized events such as World Food Day, Biodiversity Day, etc. Further, 4 posters on mushroom production were prepared.

At the second Project Steering Committee Meeting/Annual Review (April 2016), attended by high ranking Government officers and Development Partners, displays on Agro-biodiversity related interventions, carried out by the project, were exhibited.

v) Training of Trainers materials

TOT materials were compiled for agro-biodiversity cum vegetables and rice IPM trainers and included all technical subjects during the 2-3 month intensive training.

vi) General communication and awareness material

Various general communication and awareness material were prepared, including project brochures (project activities, wild mushrooms, NABP II), Success Stories/Case Stories (aquatic species and a successful oyster mushroom grower and a successful wild tea grower). Factsheets were also produced for five local initiatives (fish, ethno-botanical plots, wild tea, oyster mushrooms, and Melientha).

vii) Technical reports and booklets

A number of key Agro-biodiversity related technical reports and booklets were produced including two survey reports (Utilized Aquatic Organisms and Medicinal Plants), Booklets (Phou San Wild Tea, and Wild Edible Mushroom), Farmer Guides (Melientha and Oyster Mushroom cultivation), and value chain reports (Wild Tea and Matsutake mushroom). These publications are printed and made available at MAF/UNDP/FAO/LAOFAB/other websites and expected to serve as future key reference documents. Also a printing of the Lao National Framework on the Access to Genetic

Resources and the Fair and Equitable Sharing of Benefits arising from their Utilization was supported.

viii) Agro-biodiversity networking

Agro-biodiversity networking was promoted through the SWG meetings, at presentations at field during the visit of the UNDP Administrator, Ms. Helen Clark, to project activities, which resulted significant attention (press releases, etc.), and visits of FAO Rome-based Permanent Representatives. Close collaboration with the FAO IPM Programme, TABI and DARWIN projects were kept during the project life and regular informal meetings were done with LURAS and the ICBF projects, where also lessons learned were discussed.

ix) Articles in regular bulletins

UNDP/BKK article on Nature count\$: Key Impacts of the project on Food Security and Nutrition containing results of the projects activities was supported.

x) Press conference, special events and high ranking visits

One press conference in connection with the International Day on Biodiversity was organized, press releases at environment day (summary uploaded on YouTube) and one video on TOT-participants reaction on 8-week training (in Lao with English sub-title) were prepared. The ABP project took the opportunity to advocate agro-biodiversity issues at other special events including World Food Day, and a side event at FAO Council Meeting in Rome featuring Aquatic organisms utilized by farmers.

The visit of the UNDP Administrator, Ms. Helen Clark, to the Oyster Mushroom Activities was very successful and widely tweeted and well covered by the press. At this event Ms. Helen Clark, also expressed her appreciation of FAO's engagement by providing excellent technical inputs to the project and a personal thank you letter was sent from Helen Clark to the MAF, praising the results of the ABP project.

The project had the opportunity to discuss agro-biodiversity issues with the Rome-based FAO Permanent Representatives at their visit to Laos (Dec 2015), and in June 2016 with Mr. Clayton Campanola, the FAO Strategic Coordinator and Manager of FAO's on Sustainable Agriculture, Forestry and Fisheries including Agro-biodiversity, with follow-up to develop Technical Cooperation Project (TCP) ideas between MAF and FAO headquarters.

4.2.2 Achievement of targets of outputs under Outcome 2

Table 4 and 5 provide and overview of the achievements under Project Outcome two, focusing on field activities.

Table 4. Achievement of target of indicator for Outcome 2

Outcome 2	Indicator	Target	Achieved
Capacities and incentives to mainstream biodiversity, especially agro-biodiversity, at the Provincial, District and community levels	Number of farmers adopting skills and techniques promoted through FFS and farmer field days	1,000 farmers	1,000 farmers

The outcome two indicators have been achieved although it has been difficult to assess the adoption of knowledge and skills of graduated FFS farmers. If the adoption rate is 90% the target was achieved. In addition, a total of 215 students graduated from an IPM/FFS course at three schools.

Table 5. Achievement of output targets under Outcome 2

Output	Baseline	Indicator (updated)	Target	Achieved
2.1 Capacity and accountability of provincial and district governments mainstream biodiversity into agriculture increased.	Existing tools such as training, extension, communication and mapping do not incorporate (agro) biodiversity conservation issues.	Number of Technical Service Centers with ABD conservation and sustainable use activities.	4	6
2.2 Participatory land use plans integrating agro-biodiversity developed.	Existing area with participatory land use plans and participatory NRM plans are low and do not include agro-biodiversity conservation.	Number of cluster villages with pFLUP plans.	4	5
2.3 In situ conservation for important agro-biodiversity.	Currently, there are no existing allocations of land for in-situ conservation of ABD	Number of districts with in-situ agro-biodiversity conservation plans.	8	8
2.4 Farmer skills, knowledge, and incentives necessary to undertake biodiversity friendly farming enhanced.	Capacity of farmer to undertake biodiversity-friendly farming limited and existing tools such as training, extension, communication and mapping do not incorporate biodiversity conservation issues.	Cancelled	NA	NA
2.5 Agro-biodiversity friendly community products promoted.	Number of value added agro-biodiversity products marketed for local or international markets.	Number of value added agro-biodiversity products promoted and marketed for local or international markets [REVISED].	8	5
		Number of publications disseminated analyzing economic forces and incentives influencing the status of at least one sub-group of Agro-biodiversity in NABP-II [New].	1	2
2.6 Private and public sector agreements to mainstreamed agro-biodiversity into their plans.	Private and public sector's involvement and incentives for biodiversity conservation are extremely limited.	Number of agro-biodiversity cross cutting incentives identified [New].	3	3

4.2.2.1 Local capacity development of district staff

During the project period, the local capacity development support was provided to the district's Technical Service Centers (TSCs) and DAFOs and included basic development training including on-the-job-training on preparation of local Agro-biodiversity Initiatives as well as monitoring and

sustaining the project activities.

In Phoukout District, the local officers from DAFO gained valuable experience in implementing IPM, Organic production of KKN rice, IPM, Wild Mushrooms, Fish Conservation, and Wild Tea in close collaboration with Ladngai, Phengthong Phienglouang and Ang TSCs whereas the medicinal plants sub-project activities was carried out by the Phoukout District Health office. With regard to Forest conservation issues of the Medicinal Plants and Wild Tea sub-projects, the District Natural Resources and Environment Office (DoNRE) was actively participating in surveys, mapping, etc.

In Phonexay District, the Nambor TSC gained solid experience supporting the implementation of Oyster Mushrooms, IPM and Melientha activities, whereas the Fish Conservation activities mainly was carried out by DAFO. The Nambor TSCs was also capable of running a small lab for producing mushroom spawns. The conservation part of Melientha involved DoNRE and for the IPM activities, also the technical staff of Donkham, Phongthong, Ladngai, Phengthong, and Phinglounag TSC's were trained and involved as trainers. In case of IPM in schools, the District Education Office staff were trained and made IPM modules and FFS sessions with school classes.

4.4.2.2 Participatory LUP/FALUPAM

The ABP project assisted TABI in finalizing/validating the Forest and Land Use Plans Allocation and Management (FALUPAM) in Phoukout District (Kheung Long-Hang, Tai and Long Khang clusters) and in Phonexay District (Sopjia, Donekham and Chomjieng clusters). The ABP project mainly supported the process by providing satellite images (digital maps) to enable the verification work at 47 hamlets in Xieng Khouang district and 21 hamlets in Phonexay district (Sopjia, Donekham and Chomjieng). TABI had the overall implementing and technical responsibility including technical backstopping and covering other costs. By the end of dry season 2015/16 a total of 36 villages based FALUPAM was approved by the district governors including the allocation of village conservation areas. Together with the achievements of the action plans under the PBSAPs, this activity significantly contributed to ABP's accomplishment of the conservation target of 100,000 hectares.

4.2.2.3 District with Agro-biodiversity Conservation Plans

The ABP project mainly supported Phoukout and Phonexay districts with allocation of conservation areas. In Phoukout district, a total of 323 ha for conservation of Medicinal Plants was demarcated in Donglong-Dong South Forest (total area >1,000 ha), 34 ha of wild tea conservation area was allocated in Ngodphae village and 19 fish conservation zones in Ngum river. In Phonexay district, additional 5 fish conservation areas were established in Kham River and 248 ha forest areas was conserved to protect Melientha trees as part of a total forest area of 6,685 ha.

In addition, as per PBSAP-XK Status Report, the Kham district made conservation plans for the termination of slash and burn cultivation; Paek and Phoukout districts made village biodiversity protection areas, the Mork district pursued Phou Luang as National Biodiversity Conservation Areas (awaiting NA approval); the Mork, Phoukout and Paek districts made specific forest

conservation plans; the Mork and Khoun districts made forest regeneration areas, fish conservation areas was allocated in Phoukout, Mork and Nonghet districts; wild tea conservation areas was allocated in Paek and Phoukout districts; and a Management Plan for hing hom (*Dacydium elatum*) was prepared in Mok district.

The PBSAP for Luang Prabang province also outlined a number of agro-biodiversity action plans of which many are expected to be fulfilled beyond the project period.

4.2.2.4 Local ABD In-situ conservation interventions

a) Fish Conservation (Phoukout and Phonexay districts)

Similar to the ongoing fish conservation initiative in Phoukout District, a fish conservation initiative started-up in Phonexay District beginning of 2015 covering five villages (Phonthong village, Donkham, Hadjong, Donngern and Paknga). As part of the baseline carried out with assistance of LARReC, a gender and in-depth ecological analyses were made and resulted in recommendations for establishing at least three large conservation zones (300-1,200m long) in Khan River. The baseline (mixed interviews and sampling) revealed a total of 148 fish species of which 15 species were commonly fished and some were rated as endemic. The number of fish species was slightly higher than in Phoukout District recorded a total of 125 fish species of which 10 were commonly caught. In both places, the villagers informed about significant less harvests compared to 10 years ago, which indicates overfishing and a need to protect the species in the critical egg laying periods. The Impact Study in Phoukout showed 20% increase in species, though 5% less weight. During the final evaluation and follow-up meeting, the villages stressed a significant increase in fish stock, although they still faced some enforcement problems of their fishing regulations.

b) Oyster Mushroom domestication (Phonexay district)

The Oyster Mushroom cultivation activities have resulted in production of more than 12 tons of mushrooms from 115,600 bags generating a total income of more than 155 million kip equal to some USD 20,000. As a result, the families have spent much less time in the forest and thereby significantly contributed increased family income and food security as well as to more sustainable harvest of Non Timber Forest Products, including wild mushrooms. One grower has been very active and provided training to other growers and also skilled in making mushroom spawn at the Nambor Lab. Ongoing and new farmers will benefit from the detailed and very illustrative step-wise farmer guide produced under this activity. This activity has been widely disseminated and was also subject to a successful visit of the UNDP Administrator, Ms. Helen Clark.

c) Wild tea Ngodphae village

The Conservation and Management of the Wild Tea initiative in Gnodphae village of Phoukout district, a total of 63 families (up from planned 13) produced and transplanted 96,000 wild tea seedlings in a total area of 53 ha tea gardens as well as in 35 ha upland fields between trees and crops. The tea planting significantly reduced slash and burn activities and village also received the district approval of 34 ha wild tea conservation area and issued regulations for their protection.

With help of two international tea taxonomists only one common tea variety (*Camellia sinensis* var. *assamica*) was present in the area. However, the survey team identified one additional species (*Camellia kissi* var. *confusa*), which in China is used to extract oil for the health and cosmetic industry. In addition, the project assisted the local authorities to establish wild tea protection areas, consisting of 5 plots in 34 ha with 64 wild tea trees. The comprehensive study on Phou San Wild Tea, among others, offers detailed recommendations for conservation and production of wild tea.

d) Melientha conservation and domestication (Phonexay district)

Since mid of 2015, a total of 13 families from four villages cultivated 4,225 *Melientha* seedlings from 62 kg of seeds collected from natural stands in the nearby forests. They were provided with knowledge and skills about shading requirements, land clearance/shading, soil preparation, planting density, etc. In August 2016, a flood destroyed some 650 seedlings resulting in only 3,447 seedlings were transplanted in a combined area of 1.4 ha. A farmer-guide was prepared by the project team and through 3 surveys of 15,000 ha containing 49 *Melientha* trees were formally protected in a combined total area of 247 ha within four village areas.

e) Medicinal plants conservation and domestication

As a result of the two surveys from 10 defined 100 m² plots within the 323 ha Dongsouth-Donglong conservation area, 44 medicinal 52 food plant species were identified. The total number of food and medicinal plants species used by villagers and healers were much higher i.e. 152 and 107, respectively. As a result of the survey, a book was prepared with illustrations and use of 141 medical species used by six local healers to cure 34 diseases.

f) Organic Rice

The Organic Rice (KKN) sub-project covered an area of 120 ha and six villages in Phoukout district. As a result of this activity, the farmers certified 20% of the 2014 crop, as organic rice. The project has also supported these farmers through IPM/FFS.

g) Wild Mushrooms

The collaboration with the DARVIN project resulted in a simple database containing more than 1,500 registrations and samples of which some was DNA analyzed. A collaboration matrix is shown in Annex 7 shows the collaboration mechanisms between ABP, DARWIN and TABI Projects. Nearly all of the recorded species are new for Lao PDR and some will be new records for science. A 2013/2014 Field Survey Report on edible and medicinal mushroom species as well as a book containing information of more than 80 edible and poisonous mushrooms species was prepared. Further, value chain study was carried out on Matsutake mushrooms (het wai) including recommendations for sustainable harvest.

h) IPM/FFS Activities

A total of 740 rice farmers (37% females) and 361 vegetable farmers (81% females) graduated from the season long (typically 1 time per week) Rice Farmer Field Schools (FFS) in a total of 53 villages (Phoukout: 26 and Phonexay: 27) facilitated by most of the trained trainers in the two provinces i.e. 31 extension staff (14 females) and 18 leader farmers (11 females). Of the graduated trainers, 13 extension staff (3 females), 11 farmers (7 females) and 7 teachers (7 females) came from Phoukout district whereas 18 extension staff (4 females), 7 farmers (4 females) and 4 teachers (no females) came from Phonexay District. The many topics included agro-biodiversity analyses, organic fertilizers and pest management including the use of local herb extracts as bio-insecticides. The facilitation and training included the identification of more than 200 animal and plant species used for various purposes. For example, in one village, rice straw was used to produce oyster mushrooms and bio-insecticides were made from various extracts of local plants. The programme has also trained 350 students from four local schools by most of the 11 graduated teacher trainers (7 females). On cost sharing basis with the FAO IPM programme 14 extension staff (4 females) graduated from TOTs on rice and vegetables. In and Phonexay and Phoukout districts the total number of graduated FFS farmers were 398 (43% females) and 613 (48% females) from Phonexay and Phoukout districts, respectively. At the end of the IPM/FFSs activities a Farmer Field Days (including exhibition on topics gained) were organized with participation of neighbouring farmers and schools totaling more than 1,000 guests.

4.2.2.5 Value added biodiversity products

A number of local initiatives were carried out, addressing three commodities i.e. KKN rice, wild tea, oyster mushrooms and the "Xieng Khouang Matsutake mushroom". Further, a value chain study on Job's-teas were considered, but due to nearly all of the cultivation were outside the project core areas, this activity did not materialize. Domestication of medicinal plants was pursued, but mainly due to limitation of suitable land near the villages, the activity did not go ahead.

a) Oyster Mushrooms

The ABP project assisted five oyster mushroom village groups with market information, labels for sale bags (each village with specific logo), and a village signboards on oyster mushrooms. As a result of project supported activities, the growers were well aware of the price in Luang Prabang and local markets and were able to negotiate highest possible price.

b) Wild tea

Due to improved storage of wild tea and provision of frying pans, the Ngodphae village has improved the quality and will fetch better prices in the future. At special events, the project produced labels for small tea bags, which fetched higher price and a village signboard is also expected to facilitating local sales. However, villagers are much depending on prices given by traders. The support and attention given by the project have had a positive effect on confidence of the wild tea growers and if the series of recommendations developed by the project are followed

(including various processed tea, packaging, tourist visits, etc.), the prices will go up.

c) Khao Khai Noi Rice

The locally produced and very famous Khao Kai Noi (KKN) Rice landrace fetches higher price and the project has made efforts to register KKN as organic and thereby adding value. As a result the KKN was certified as organic rice. The organic KKN rice market has a huge potential and the purification efforts by the government of the 4-5 KKN "sub-landraces" also contributed to add value, though the exact value addition is difficult to assess.

d) Wild Mushrooms

The increased attention given to "Xieng Khouang Matsutake" (het wai) and other wild mushrooms generally added confidence to villagers, selling to local traders and added value through better market information. Still, however, the market much depends on what the Chinese traders can offer and there is room for improvements in packaging, labeling and marketing of dried "matsutake" as well as other wild mushrooms including boletes (het pueang etc.), red brittlegills (het kho daeng), ganoderma sp. (lin jeu), etc.

e) Melienta

The domestication of Melientha vegetables (pak wan) started in 2014 and by end of the project nearly 4,000 trees were transplanted in four villages. The harvesting will start in in 2017 and 2018 and due to the project activities more systemic sales and marketing are expected to be carried out.

4.2.2.5.1 Publications analyzing economic forces

ABP has prepared three publications covering two biodiversity subgroups. Two studies on fungi (wild mushrooms in general and "Xieng Khouang Matsutake" in particular) and one study on Phou San Wild Tea. The studies include economic estimates. The studies also showed that wild mushrooms are picked by a majority of villager in Phoukout District, sold fresh at local markets and to traders (as fresh or dried) giving families a yearly incomes of approximately USD 200 per household. The "Xieng Khouang Matsutake" represents at annual harvest value of least USD 0.5 million for the whole province.

The family income from sales of Phou San Wild tea in the three surveyed villages was estimated to USD 2-3,000, though larger variations exist. For dried mushrooms and wild tea the Chinese traders dominates the market and no official trade/export data were available for the survey teams. The price of wild mushrooms were steady (USD1-12/kg fresh and USD 10-125/kg dried), whereas the wild much depended on the price set by Chinese traders, though the price were not recorded as being much higher than in Phongsaly Province. Both for wild mushrooms and Phou San Wild Tea, better and alternative packaging, sales and marketing will add values to the products.

4.2.2.5.2 Cross cutting incentives

At least three agro-biodiversity cross cutting incentives were pursued:

- a) **Domestication of wild valuable species** combined with protection of the very same species and their habitats (pursued examples are oyster mushrooms, wild tea and Melientha and fish species) – thereby protection the areas as sources of seeds and potential agro/eco-tourism.
- b) **Utilization of plant local plant species for production of bio-insecticides** as practiced in rice and vegetable IPM/FFSs, thereby protect ecosystem for such use and at the same time reduce/avoid costs for commercial agro-chemicals and the environmental risks of using harmful pesticides.
- c) **Promotion of organic production of indigenous rice landraces** has the incentive of protection the ecosystem from pollution, reducing demands and risks of poisoning the users and at the same time providing higher crop returns.
- d) **Mixed incentives** were often the case in the supported as a mix of the above mentioned incentives.

4.2.2.5.3 UNDAF targets

The ABP Project contributed to the UNDAF (2012-2016) Outcome 7 and Output 7.3 on government assurance of sustainable natural resources management through improved governance and community participation. More specifically, the ABP project contributed to local land use planning, conservation and management (including regulations on protection and sustainable use) of wild tea, medicinal plants, Melientha and fish. Further, the ABP project assisted the local and national government in promoting protection and sustainable use of landraces/ varieties and native livestock as well as farming systems/ecosystems/landscapes in the NABP-II and PBSAP for Xieng Khouang and Luang Prabang Provinces.

5. Implementation review

5.1 Partnerships

5.1.1 Government institutions

a) *NAFRI of MAF – NABP & Fish Conservation*

The ABP project supported NAFRI in two core areas. Firstly, early 2014, requested by and under strong leadership of Dr. Bounthong (Dir. Gen.), the ABP project started to support the formulation process of the Second National Agro-biodiversity Programme (NABP-II), including a series of workshops with participation of all stakeholders within MAF, other Government Agencies, NGOs, projects, and the private sector. NABP-II was completed beginning of 2016. Secondly, since 2015, the chairmanship of the sub-Sector Working Group on Agro-biodiversity moved from Department

of Planning to NAFRI with the ABP project providing shared secretarial assistance together with NAFRI and FAO.

Also under NAFRI, the ABP project has worked closely with the Living Aquatic Resources and Research Institute (LARReC) in carrying out baseline and impact studies for the Fish Conservation "sub-projects".

b) DoA of MAF – IPM and Oyster Mushroom Cultivation

From the outset (2012), the ABP project consulted with the Department of Agriculture on the implementation of the ABP IPM Programme.

In addition, since 2014, the ABP project enjoyed unusual dedicated support from the Plant Protection Center by allocating technical backstopping and on-the-job training support to five Oyster Mushroom Cultivation villages in Phonexay district. The center was the driving force in preparing various training material including a farmer guide on oyster mushroom production steps.

c) DLF of MAF – of Aquatic Resources

As partner to the FAO Rice Initiative, initially, in 2013, the ABP project cooperated with the Department of Fisheries and Livestock in unifying questionnaires and methodology for three provinces. In the end, however, only the ABP project generated a comprehensive assessment (technical) report on aquatic organisms in rice based ecosystems at three villages in Phoukout District, see list of publications in Annex 4.

d) NAFC of DOAP, MAF

At the outset (2012), contacts were established to the Northern Agriculture and Forestry College (NAFC), but due to lateness in the approval process the proposed activities were taken over by the SURAFCO project, already supporting the college.

e) PAFO and DAFO

At local level, mainly the District Agriculture and Forestry Office (DAFO) in Phoukout and Phonexay districts was the key entry point for the local collaboration and received delegated implementation responsibilities for a total of 10 local agro-biodiversity initiatives. Collaboration was fruitful, though there was a fine balance to on one hand guiding, directing and requiring quality progress reports to agreed workplans and targets and on the other hand delegating full responsibility to often younger and inexperienced staff.

Since 2014, provincial based coordinators from PAFO were assigned and were helpful and increasingly involved in site visits and other coordination work.

f) ITM of MoH

Since 2013, the ABP project was in close contact with the Institute for Traditional Medicine (ITM) of the Ministry of Health and from 2014 been the partner in the implementation of a sub-project/ Agro-biodiversity Initiative (ABDI) on Conservation and Domestication of Medicinal Plants in Phoukout District. A significant outcome of the partnership was the preparation of a book on Medicinal and Food Plants in Dongsouth-Donglong Forest area including a description of 141 plants, locally used by six local healers to treat 34 diseases.

g) BEI of MoST

The collaboration with the Biotechnology and Environment Institute (BEI) of the Ministry of Science and Technology (MoST) was pursued on four fronts. Firstly, related to Access to Genetic Resources and the Fair and Equitable Sharing of Benefits arising from their Utilization and in close collaboration with FAO, the project assisted MoST by printing their National Framework on Access of Genetic Resources and the Fair and Equitable Sharing of the Benefit Arising from their Utilization (Nagoya Protocol), and provided presentations at two seminars (2013 and 2015). Further, as partner to the DARWIN Initiative, the APB project assisted in capacity development in mycology (see below) and thirdly BEI was an active partners in the formulation of the NABP II. Lately, BEI was an active partner in the preparation of the PBSAP for Luang Prabang. Under the Medicinal Plants Agro-biodiversity Initiative, steps were made to multiply - by tissue culture - a soil orchid (medicinal plant) at BEI, but due to time constraints this activity did not materialize.

h) NUoL of MoE

Only minor and indirect collaboration was established with the National University of Laos (NUoL, by active participation in the Sub-sector Working Group on Agro-biodiversity and lately by actively contributing to the preparation of the PBSAP of Luang Prabang. The envisaged support to the agro-biodiversity related curriculum development did not materialize, mainly due to support from the TABI and SURAFICO projects.

i) DFRM of MoNRE and PoNRE

The collaboration with Department of Forest Resources Management (DFRM) of the Ministry of Natural Resources and Environment (MoNRE) was mainly related to the formulation of the second National Biodiversity Strategy and Action Plan (NBSAP), where the ABP project took active part. One press conference event (Bio-diversity Day) was co-organized with DFRM, IUCN, FAO and UNDP.

At provincial level, the Provincial Department of Natural Resources and Environment (PoNRE) in Xieng Khouang was instrumental in the preparation of the PBSAP for Xieng Khouang and during the initial period of the preparation of the PBSAP for Luang Prabang.

At district level protected area planning including Medicinal Plants, Wild Tea, Melientha, the DoNRE was also an active partner.

The two times change of focal point of CBD including the responsibilities of NBSAP/PBSAP from MAF to MoNRE and now (2016) back to MAF, however, led to delays and change of staff, thus making a lasting collaboration, ownership and impact more difficult.

5.1.2 International organizations

a) FAO

FAO was a formal co-financing partner to the project and was very supportive during project preparation and implementation from the inception phase. Further, in 2012, the FAO became an official partner under the MoU (USD 884,437), providing core technical implementation inputs, including the recruitment of CTA and short-term international and national consultants. Further, FAO increasingly provided key coordination inputs through co-chairmanship of Sector Working Group on Agro-biodiversity and since 2014 and recently (from 2016) co-chair of the Sector Working Group on Agriculture and Rural Development. Finally, also being attached to FAO, the CTA benefitted from easy access to regional and international FAO experts and programmes such as the FAO IPM Programme, the Safe and Growth project, the Pesticide Risk Reduction Project, the Regional Rice Initiative, and the Regional Geographic Indication Projects.

b) IUCN

From 2014, the ABP project was invited to take part in the preparation of the second National Biodiversity Strategy and Action Plan (NBSAP) and provided comments to the various drafts. Invited by IUCN and MoNRE, the ABP project team also provided comments to the achievements of the Aichi targets as part of the report to Convention of Biodiversity (CBD).

In addition, IUCN was chosen as partner to assist both the Xieng Khoung and Luang Prabang provinces in preparing their Provincial Strategy and Action Plan.

c) IWMI – Pesticide use

In addition to providing comments to the NABP-II document, the International Water Management Institute (IWMI) was active in the sSWG ABD including presentations on effect of pesticide use on soil and water sources.

5.1.3 Projects

a) TABI – background info and LUP

Bearing in mind that the nature of GEF funded projects is to complement and to partner-up with existing projects (co-financing partners), the ABP project, from day one, was collaborating closely with TABI (main co-financing partner) and benefited from their initial results as well as many of the SDC funded studies. Particularly, during the inception phase valuable information was provided and to some degree the collaboration continued during the implementation. Further, the ABP project benefited from good collaboration with the communication and awareness “sub-component”,

commissioned to Bern University during Phase I, TABI, which led to the suggestion of a shared website, but for various reasons, this was not feasible.

Being in the same districts with TABI, however, led to the unfortunate competition of scarce local human resources. For example, in terms of Land Use Planning (LUP), TABI was very engaged with district and provincial staff in a comprehensive planning process. Applying a new and more simple methodology was not feasible, so the option of co-funding the verification process of land allocation was then pursued with the ABP project providing satellite imagery for the two districts and TABI taking the technical lead.

Further, the ABP project provided inputs to a TABI/SDC consultancy document (sixteen agro-biodiversity priority commodities) and particularly so on wild tea and wild mushrooms.

Unfortunately, in last minute, a locally proposed and approved native banana (ABDI/sub-project), had to be canceled, due to unexpected banana funding by TABI in the same village.

b) SURAFCO project

As mentioned above, contacts with the National Agriculture and Forestry Center (NAFC) was quickly established and various activities were agreed in May 2012 in close collaboration with the SDC funded project: Support to Agriculture and Forestry Colleges in Lao PDR (SURAFCO), including support to a medicinal plants demonstration plot, agro-biodiversity curriculum and awareness material, etc. However, due to delays in the final approvals, this initiative was taken over by SURAFCO in 2013.

c) FAO Regional Rice Initiative pilot programme

In May 2013, the ABP project became local partner of the FAO Regional Rice Initiative Pilot Programme by carrying out an assessment study of utilized organisms in paddy rice based aquatic eco-systems. The resulting reports of 95 species were presented at national workshops, regional meetings in Lao PDR and Indonesia and at a side event at FAO Council meeting, Rome in June 2014.

d) Darwin project – wild mushrooms

In 2012, the ABP project was invited to become partner of the a DARWIN project: Building Mycological Capacity for Sustainable Resource Management in Lao PDR together seven other partners, including James Hutton Institute, Aberdeen; the Royal Botanical Garden Edinburgh, the National University of Laos, the University of Ghent, Belgium, and the University of Tartu, Estonia. The role of the ABP was to provide on-the-job training a local level (2013-16), support collection/drying of wild mushrooms for species identification, contribution to database, hosting two fungal forays (May 2015 and May 2016) for international and national fungal taxonomists and preparing a value chain report on “Xieng Khouang Matsutake” (Het wai) mushroom, see Annex 7. The 2013 field survey carried out by the ABP project was taken as a common product (report). Finally, in 2016, an ABP-DARWIN wrote an article about the two project’s collaboration and achievements, published in the Danish Bulletin (SWAMPE, 74, 2016 with English summary).

e) FAO IPM Programme

Close collaboration with the "FAO IPM Programme" including valuable local and regional contacts was established shortly after the inception and continued during the implementation and greatly benefited the ABP IPM/FFS set-up and the TOT. Further, the ABP project hugely benefitted from technical backstopping, posters, booklets, etc. regularly provided by the FAO/IPM Programme.

5.1.4 NGOs and CSOs

a) TEF - IPM

With significant expertise and regional network on Integrated Pest Management, the Thai Education Foundation (TEF) was in 2013 invited to formulate the overall ABP-IPM Strategy and Implementation Programme for the two districts for rice, vegetables and biodiversity over a 3-year period. Subsequently, in close collaboration with national experts, the TEF also provided resource persons to Rice and Vegetable Training of Trainers (TOT), where a total of 35 extension staff, 18 teachers and 11 farmers were trained.

5.1.5 South-south collaboration

a) Ministry of Agriculture, Thailand - IPM

A total of four IPM experts and three entomologists from Department of Agricultural Extension and Cooperatives were invited as resource persons in IPM at the TOT on vegetables and rice.

b) CAAS and CAS, China - Wild tea

As part of the general support to the wild tea in Xieng Khouang Province as well as to the target village of Ngodphe, in 2015, two Chinese wild tea experts (a taxonomist and production expert) took part in the Phou San Wild Tea study.

5.1.6 Others

a) Pha Tad Ke Botanical Garden

Since 2014, the ABP project was in close contact with the Pha Tad Ke Botanical Garden in Luang Prabang and provided support to the establishment of 4 ethno-botanical plots, which today are some of the key attractions of the garden. The project also supported the garden with preparation of a small booklet on Medicinal Plants. In addition, their staff provided forestry inputs in Melientha survey and medicinal plants survey as well as at the preparation of the PBSAP for Luang Prabang.

b) Survey on Medicinal Plants

The sub-project on conservation and domestication of medicinal plants benefitted from extra-ordinary medicinal plants support from Dr. Sang Woo Lee, from the Korea Research Institute of Bioscience & Biotechnology, visiting the Institute of Medicinal Plants.

6. Sustainability aspects

The sustainability aspects of the project are understood as project initiated interventions continuing after the closure of the project.

6.1 Central level

a) Agro-biodiversity coordination

Both NAFRI and FAO have firmly committed to the work of the sSWG on Agro-biodiversity, without secretarial assistance from ABP. Actually, since its reorganization in 2015, the secretariat was institutionalized in NARFI and no longer dependent on project support, thus, significantly moving towards a full Government owned forum.

b) Follow-up on NABP-II

After the presentation of the NABP-II, the commitments to fund parts of the implementation plan have been expressed by development partners including Swiss Development Cooperation (SDC) and FAO. Currently, the FAO has taking steps to prepare a Technical Cooperation Projects (TCP) on underutilized crops and livestock related agro-biodiversity.

6.2 Local level

a) Biodiversity Strategy and Action Plans – Xieng Khouang and Luang Prabang provinces

- The Biodiversity Strategy and Action Plans (PBSAPs) for Xieng Khouang and Luang Prabang provinces until 2025 contain more than 200 plans, actions and targets that are in the process of or will be implemented and contributing to sustainable use and conservation of Agro-biodiversity.
- The Lao and English version of the PBSAPs have been uploaded to web sites and sent to projects and development partners for possible follow-up.

b) Oyster Mushrooms

- The 40% bank saving in group regulations have ensured capital for investing in future batches
- GEF small grant proposal is being developed to follow-up with technical assistance
- A lab at the Technical Service Center in Nambor was set-up to provide spawn materials as an alternative to commercial providers in Luang Prabang District and is continuing.

c) Ethno-botanical plots at PTK Botanical Garden

- The project support to the establishment of the ethno-botanical plots is one of the key attractions of the newly opened Pha Tad Ke Botanical Garden (first of its kind) in Lao PDR and

has greatly contributed to enabling the garden to charge entrance fee for further developing the garden, which already has the status of being one of the best in the region.

- Good explanatory signs and labels have lasting educational value to visiting students from local schools and universities (free entrance). Likewise, students were invited to provide comments and ideas to the botanical text and thereby increasing their interest for the displayed topics.

d) Melientha

- The ABP project support to conservation and domestication of the threatened *Melientha* trees has signs of lasting effect by strong local government support by issuing regulations, setting-up signboards and labeling wild stands.
- The continuous planting of *Melientha* trees (so far 3,700) in the forest, in fruit tree gardens, etc., by the four villages indicates strong farmer interest in making economic use and at the same time protecting the wild seed stands from unsustainable harvests. The farmer cultivation guide produced by the project is supporting the farmers and is likely to add new villages in cultivating *Melientha*.

e) Wild tea

- With inputs from Chinese experts, the ABP project provided the growers with guidance on improved production, processing and market development, including recommendation of eco-tourism.
- The comprehensive cultivation, processing and market recommendations provided by the tea study team gave good background for exploring overseas tea market. Based on the opportunities highlighted in the Phou San Wild Tea Report, one international (British) tea processor with factory in China together with a British market expert are currently exploring export potentials for organic tea from Ngodphae village to the United Kingdom.
- The project District Facilitator is on own initiative continuing facilitating farmer-buyer contacts.
- Follow-up funding (GEF small grant) for better packaging and sales for tourist market in Xieng Khouang is being pursued.

f) Fish Conservation

- Based on the positive impact on harvests after establishing the fish conservation zones and banning illegal fishing methods, recorded by the villages, the interventions are likely to have lasting effects on the fish ecology and biodiversity. Sustainability, however, much depends on enforcement of the village regulations.

g) Protection of wild mushrooms

- The surveys on wild mushrooms have resulted in increased awareness on the importance of both protecting the forest habitats, hosting the wild mycorrhiza (tree-fungi symbiotic association) mushrooms, including the very expensive Xieng Khouang Matsutake mushroom and the widely harvested red brittle caps.

h) Protection of habitats of medicinal plants

- The involvement of several local agencies and local communities in the protection efforts of medicinal plants, including signboards and demarcation polls was an important step towards protection of rare but expensive species. Also the illustrative handbook of 141 medicinal plants and their usage by local healers is contributing to document local knowledge and practice as well as the importance of conservation.

7. Challenges and Response Strategies Adopted

7.1 Main challenges and responses at central level

7.1.1 Full-time counterpart allocation

Partly due to the small overall budget, the Government was not able to allocate full-time staff which particularly in the beginning of the project contributed to confusion on directions and priorities at local level. The situation significantly helped after the LoA was made with FAO in 2012, providing FAO the responsibility for technical inputs. Fulfilling the mid-term review recommendations, including a revised project set-up greatly improved the situation of slow progress and the project was able to speed up the planned interventions.

7.1.2 Common steering committee with TABI

The “programmatic approach suggestion” in the project document and in the inception report to merge the steering committee with TABI as well as having regular formal meetings between the two projects did not materialize. Ad hoc meetings and consultations as well as assignment of common ABP and TABI National Coordinator, however, compensated to some degree.

7.1.3 Slow decision making process

In spite of having monthly meetings, the decision making process was very slow during the first half of the project period, which particularly influenced the preparation of field activities. As a result detailed sub-project preparation guidelines were prepared, including formal appraisals of the locally implemented activities.

Similarly, local confusion of project strategic directions of prioritized focus topics versus local government desires of many small (more than 40) interventions led to delayed decisions. The implementation of the recommendations of the mid-term technical review on stronger focus on few

technical areas and stronger national leadership largely solved the problems and misunderstandings.

7.1.4 Reorganization of MAF and MoNRE

Two reorganizations of MAF and MoNRE created delays related to preparations of the second NBSAP. It also meant frequent change of staff and that the expected backstopping at central level did not take place with regard to preparation of the two PBSAPs. An earmarked ABP project funding to the Department of Forest Resources Management (DRFM) would probably have helped. In 2016, the CBD Focal Point has moved back to MAF.

7.1.5 Village focus

Due to the heavy engagement of TABI in the two targeted districts, the initial focus on few priority villages was difficult to pursue. Instead the approach was changed to subject related support (Fish Conservation, Wild Tea, Melientha, etc.), with strong focus on bottom-up approaches.

7.1.6 Local implementation and reporting

The activity progress reporting of local initiatives (sub-projects) from the responsible local implementing government staff was a challenge in most of the local activity areas (ABDIs). This was partly solved by asking the District facilitators to play a stronger supporting and proactive role.

8. Lessons Learned

8.1 Implementation

8.1.1 Full-time counterpart allocation

From the outset of the project it is important to allocate committed full-time counterparts with strong team building skills. In case of failures effective systems should be put in place to quickly and smoothly react without creating unnecessary tensions.

8.1.2 Common steering committee with TABI

Seeking highest possible complementarity and mutual benefits in similar project interventions, it is important that all stakeholders up-front formally agree on key steps and *modus operandi* to be taken into account to ensure constant and forceful follow-up with related projects.

8.1.3 Local implementation, reporting and incentives

It is crucial to agree on and pursue a bottom-up approach in agro-biodiversity conservation and sustainable use, by constantly paying attention to overall “objectives” and targets.

At the outset, it is important that mechanisms are firmly in place for honoring/making incentives for technical capacity development targets, rather than concentrating on disbursements of funds. This could include special prices for best performing officers and farmers.

Whereas delegated implementation is important for local ownership, it is important to regularly report against agreed indicators and time frames in the day-to-day management and to couple this with in-built incentives for quality reporting.

Well-meaning top down wish list approach for the preparation and implementation of local initiatives has the risk of failing unless independent facilitators are given sufficient time to discuss the issues with the villagers.

When allocating staff in larger interventions, such as TOT it is important to announce a screening process up-front and followed with the view that most committed staff are trained and constantly monitored and assisted.

9.0 Exit Strategy and Sustainability Plan

With the view of ensuring optimal benefits from the achievements and results of the project, the following issues were agreed:

1. Presentation at final project meeting (PSC Meeting and Final Annual Review Meeting) key results and publications.
2. Commitments from FAO and NAFRI to continue supporting the work under the Sub-Sector Working Group on Agro-biodiversity.
3. A list of specific follow-up actions were agreed with project with local communities and local implementers:
 - Small Grant (GEF) support to Wild Tea (cultivation, processing and marketing),
 - Small Grant (GEF) support to Oyster Mushrooms (rehabilitation from flooding and technical support and possibly other mushrooms),
 - Continuation of Pha Tad Ke Botanical Garden in advocating agro-biodiversity issues to visitors including local schools and universities,
 - Provincial Governor Office putting more emphasis on follow-up with provincial agencies on the Provincial Biodiversity action plans, and
 - The Institute of Traditional Medicine, MAF and private sector working together with other agencies and the private sector to support farmers in cultivating high value medicinal plants.
4. MAF and FAO follow-up on NABP II proposed activities to prepare possible Technical Cooperation Projects (e.g. on less utilized crops and biodiversity in animal livestock).
5. PAFOs/DAFOs continue to support villagers in enforcing fish conservation regulations.
6. MAF/DOPC ensures the project results and key documents are referred to when discussing new initiatives with development partners.
7. Local stakeholders, MAF and TABI/SDC follow-up on wild tea (market), wild mushrooms (sustainable harvests/markets) and Melientha (niche crop).

8. Under UNDP National Implementation Modality (NIM) Standard Operating Procedures, all assets purchased with the projects are officially transferred to the Government of Lao PDR to continue the improved capacity for implementing agro-biodiversity initiatives.
9. TABI and SDC capitalize on key project outputs in their next phase.
10. UNDP CO, ABP CTA and GEF SGP identify community groups, farmer cooperatives or other eligible community groups that could apply for the GEF Small Grant Programme funding.
11. FAO Continue to use the project results in their portfolio planning and implementation.
12. MAF and other stakeholders utilize to extent possible ABP results, expertise and lessons learned.
13. The ABP project makes available to Government, FAO, UNDP, LAOFAB websites and to other interested parties soft (and limited hard) copies including tools, guidelines, manuals, training guides, brochures, strategies, and technical reports.

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Annex 2. Issue logs (final)

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Annex 5. Changes as result of inception workshop

Annex 6. List of FAO short-term consultancies

Annex 7. Collaboration matrix – Wild Mushrooms

Annex 8. Mid-term Review recommendations and status

PREPARED BY CTA AND NPC



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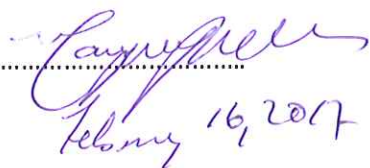
APPROVED BY NPD



Date:

Mr.xaypladeth CHOULAMANY

RECEIVED AND REVIEWED BY UNDP



Date:

February 16, 2017



Annex 1. Risk Log (final)

Project Title: Agro-Biodiversity Project (ABP)						Award ID: 00060069	Date: 30 Nov 2016		
	Description	Date of Completion	Type	Impact & Probability (1-4)	Counter measures / Mgmt response	Owner	Submitted, Updated by	Last Update	Status
1	Pending N/PBSAP cons. w/s in XK	Q1/13	Operational	Delayed response I= 4, P=4, Total 16	Follow-up at monthly meetings	NPM/ UNDP	CTA/IUCN /AP	End Q2 2014	Solved
2	pFLUP Delayed of implementation with TABI	Q1/13	Organizational/Operational	MAF Instructions pending I= 4, P=4, Total 16	Continued follow-up and guidance from MAF Leadership	NPM/U NDP	CTA/AP	End Q4 2014	Solved
3	Delayed of implementation of ABDIs	Q1/13	Operational	Delays field implementation. I= 3, P=4, Total 12	More delegation to CTA and AM, More field visits of CTA & APM	NPM/ MAF/U NDP	CTA/AP	End Q3 2014	Solved
4	Delayed of printing PBSAP in Lao version	Q1/13	Operational	Delayed implementation I= 3, P=3, Total 9	Regular follow-up	NPM	AP/UNDP/ CTA	End Q2 2014	Solved
5	Delayed approval of local budgets for IPM/FFS	November 2013	Operational	Delayed implementation I= 2, P=3, Total 6	Regular follow-up incl. monthly meetings	NPM	CTA/AP	Q4 2013	Solved
6	Delayed IPM/FFS	December 2013 /June 2014	Operational	One year delay due to cropping season I= 2, P=3, Total 6	Approval of budget	NPM	CTA/AP	June 2014	Solved
7	Insufficient staffing at Vientiane office	October 2013	Operational	With part-time NPC I= 3, P=3, Total 9	No further official positions	NPM	CTA	30 June 2015	Solved
8	Insufficient support and backstopping at field level, due to delayed replacement of DF, XK from Jan. Successor resigned after two months	Jan 2015	Operational	Limited follow-up I= 3, P=3, Total 9	Top candidate withdrew	NPM	CTA	31 Mar 2015	Solved

Annex 2. Issues log (final)

Project Title: Agro-Biodiversity Project (ABP)					Award ID: 00060069	Date: 30 Nov 2016
	Type	Date of Completion	Successes	Shortcomings/lessons learned	Recommended solutions	Submitted, updated by
1	Preparation of local interventions	15 Dec 2011		Preparation of local interventions is time consuming and must be followed-up according to strict, but realistic timelines	Clear consensus with partners on preparation steps and prepare detailed guidelines.	APM/CTA Solved Guidelines prepared in June 2013
2	Recruitments takes time	7 th March, 2013	DF arrived in time	In-depth knowledge of NIM and close consultations with UNDP are important for successful implementation	Find ways within NIM to timely get staff	APM/CTA Solved
3	Timely financial management	10 Jan 2013 10 Apr 2013	Prepared financial report on time	Lack of awareness of importance of in-time payments and quick decision making	Close monitoring and spot checks	CTA Partly solved Still delays, but better transparency
4	Teambuilding	1 st . Jan 2013 and 1 st . Apr 2013	Monthly meetings with UNDP and FAO creates a forum for team building	Regular updates between central and local level important for team building. Regular exchange of info important	Frequent visits to districts by Vientiane based staff and frequent visit of DFs to Vientiane (work plans/monthly meetings, etc.)	APM/CTA Solved 1-2 monthly visits to districts
5	Feedback on legal framework	Mid April 2013	Local ownership of PBSAP	During the formulation process immediate translations are needed in order to ensure international inputs and recommendations	More precise annual and quarterly and monthly workplans	CTA Partly solved Needs feedback from either local consultant and/or IUCN

Annex 3: Estimate of Lao agro-biodiversity resources

Organism	Wild (used)	Gen-plasm (gene bank)	Cultivated		Raised (animals)	
			Species	Varieties/land races	Species	Breeds
Plants	2,500*	17,000	135*	180*	-	-
Rice	-	14,500	1*	30*	-	-
Non rice crops	50*	2,500	100*	150*		
NTFP**	500*	-	14*	-	-	-
Medicinal plants	1,700	-	20*	-	-	-
Animals	800*	-	-	-	40*	50*
Livestock	-	?	-	-	20*	50*
Insects, etc.	100*	-	-	-	10*	-
Fish & Aquatic	200*	-	-	-	10*	-
Macro fungi	100*	-	5	-	-	-
Total	3,400*	17,000	140*	180*	40*	50*

*: Estimate by ABP. **: Excluding medicinal plants and macro fungi.

Annex 4. List of publications, key documents and awareness material

No	Title/Description	In Lao pages	In Eng. pages
A. Central level publications, information and awareness material			
1	Communication Strategy and Implementation Plan, 2015	-	16
2	Project Brochure 2014	4	4
3	Environment Awareness Related Posters (16 x 60 copies), 2013	16	-
4	Information materials/Briefs at International Biodiversity Day	2	2
5	Success story - Ms. Vieng, Oyster Mushroom Grower, Huayman village	5	5
6	Success story, neglected no more: Extensive use of rice biodiversity in upland paddy rice ecosystem and Wild Tea Ngodphae 2016	2	5
7	Brochure NABP II, 2014	4	4
8	Photo exhibition, Oyster Mushrooms, 2015	8	8
B. Central level technical documents			
9	Lao National Framework on Access of Genetic Resources and the Fair and Equitable Sharing of Benefit Arising from their Utilization (Printing support) ,2015	136	82
10	Lao PDR National Agro-biodiversity Programme and Action Plan II (2015-2025) (NABP II)	142	105
B. General Xieng Khouang and Luang Prabang Provinces			
11	Provincial Biodiversity Strategy and Action Plan (PBSAP), Xieng Khouang, 2013	88	70
12	Status of implementation of PBSAP-XK, Xieng Khouang, 2016	70	55
13	Provincial Strategy and Action Plan, Luang Prabang, 2016	70	60
14	Criteria for Selection of ABP Pilot Villages, Nov. 2011	1	1
15	Guidelines on formulation of Agro-biodiversity Initiative (sub-projects), 2014	20	17
16	Support Northern Agriculture and Forestry College Document, 2013 (not implemented), 2012	-	9
17	Farmer Field Schools, Project Strategy and Implementation Plan, Community Education for Agrobiodiversity, 2013	-	29
18	Training of Trainers report on vegetable IPM, 2014	-	34
19	Training of Trainers, Integrated Pest Management & Farmer Field Schools on Rice and Bio-diversity, 2014	-	51
20	Video on TOT Rice, 2014	5 min	5 min
21	IPM Final Report, 2016		
22	Four Ethno-botanical Plots, Pak Tak Ke Botanical Garden, Final report, 2015	-	120
23	Ethno-botanical plants Fact Sheet, 2016	1	1
24	Medicinal Plants Manual, Vol 1. PTK, 2015	45	
25	Wild Mushrooms - Field survey report for Phonexay and Phoukout districts, 2014	-	10
26	Edible Wild Mushrooms Booklet, 2016	120	120
27	Wild Mushrooms database/ checklist(>2,000 registrations) 2013-2016		10
28	Mushroom hunting in Xieng Khouang Province of Lao PDR (Danish with English summary)	-	10
29	Matsutake het wai value chain, 2016	18	15
30	Phou San Wild Tea, Xieng Khouang Province, Lao PDR, 2016	50	42
C. Phonexay District			
31	Fish and Aquatic Species Conservation Fact Sheet, 2015	1	1
32	Fish Conservation - Baseline study, 2015		25
33	Melientha Domestication and Conservation Fact Sheet, 2016	1	1
34	Melientha - Farmer Guide (leaflet), 2016	4	4
35	Melientha Survey Report, <i>Melientha suavis</i> , a forest vegetable, identification, mapping and habitat identification, 2015	-	15
36	Melientha - Final Report, 2016	-	32

37	Wild Mushrooms Domestication (Oyster Mushrooms) Fact Sheet, 2015	1	1
38	Oyster Mushrooms Production Steps - Farmer Guide, 2016	43	43
39	Oyster Mushroom, exhibition photo set, 2015	8	8
40	Oyster Mushrooms posters (4), 2015-2016	4	4
D. Phoukout District			
41	Aquatic organisms utilized in paddy rice based ecosystem - survey report, 2016	1	1
42	Aquatic organisms utilized in paddy rice based ecosystem - summary report, 2014	43	42
43	Fish & Aquatic Species Conservation Fact Sheet	-	22
44	Fish conservation - baseline survey, 2015	-	20
45	Fish conservation - impact survey, 2016	-	25
46	Fish conservation - Final survey, 2016	27	23
47	Forest types, Dong-long Dong-South	-	12
48	Medicinal plants book (with Scientific names)	112	-
49	Medicinal plants final report	-	27
50	Wild Tea Domestication Fact Sheet	1	1
51	Wild tea Production Recommendation	7	6
52	Wild Tea Conservation and Management, Final report, 2016	-	24
E. Other Documents			
53	Inception Report, December 2011	-	57
54	MoU FAO-MAF-UNDP	-	7
55	Mid-term Review Report	-	90

Annex 5. Changes as result of inception workshop (see also inception report, chp. 14)

14. Comments, recommendations and follow-up

The project document was in principle approved by the inception workshop on 29 November 2011 (agenda, see Annex 15) with the following comments and recommendations.

14.1 Project Approach

a) The workshop applauded project focus on:

- interactions between national and local level exchange of experience and inputs to and feed-back on new policies,
- agro-biodiversity, as important heritage and contributor to national economy - with several representatives highlighting concerns on the ongoing depletion of the natural resource base including deforestation,
- holistic approach and capacity development at all levels including NGOs and private sector
- close collaboration and interaction between upland and Multilateral Environment Agreement (MEA) projects
- participatory forest and land use planning, as an important tool for delineation of village borders and existing and future use of different land and forest types,
- quantitative and quality improvements of niche products as well as market development options/tools,
- farmer to farmer approach including the FFS/ IPM/CA – with appreciation of the FAO IPM Programme presentation on IPM experiences from the Region and Lao PDR, and
- awareness development efforts at different levels and particular at community (schools) level.

b) Recommendations and project follow-up

1. To pursue the agro-biodiversity under a programmatic approach e.g. in a sub-sector working group under the ANR Sector working Group, possibly with UNDP and/or SDC as co-chairs – which then may replace the proposed agro-biodiversity technical working group.

Project follow-up: Will follow decisions of SDC and MAF senior management.

2. To emphasize on development of local human resources including upgrading knowledge and skills of extension workers at technical service centers.

Project follow-up: Will continuously be done in close collaboration with local authorities as per detailed capacity development plans.

3. To stay several years in same village clusters in order to ensure strong farmer participation, lasting impact (as nearly all previous projects have failed due to short duration-high inputs approach leading to no change of habits).

Project follow-up: Agree and included as crucial element in the approach in the inception report.

4. Pursue market opportunities (e.g. through GI) with potential spices, traditional medicine, NTFPs, and local rice varieties (e.g. Kao Gai Noi) having good markets prospects in neighbouring countries as well as in Japan.

Project follow-up: Already in work plan and dialogue with related stakeholders will be maintained.

5. To investigate underlying threat to agro-biodiversity losses e.g. deforestation, alternatives to pioneering shifting cultivation.

Project follow-up: Included in work plan under component one, but local provincial workshops discussing threats to agro-biodiversity will be added.

6. To use of various tools related to biodiversity including possible synthesis of thru value of agro-biodiversity and contribution of livestock.

Project follow-up: Already described in project approach, but the details will be worked out during the course of implementation

14.2 Implementation issues

a) The workshop applauded project focus on:

- strong government ownership and wide use of government structures
- strong involvement of local communities/farmers
- strong collaboration with other projects and particularly with TABI
- clear log frame with indicators

b) Recommendations and project follow up

1. To start small in few cluster villages

Project follow-up: Agree and in-depth discussions with local authorities will take place during the second part of December.

2. To pursue strong ownership at district and sub-district level and considering using PCAP as partly done by TABI.

Project follow-up: Agree, and will discuss mechanism with UNDP and with district authorities

3. To encourage to local leadership

Project follow-up: We agree, and actually an essential part of UNDP's national implementation modality. Encouragement to and facilitation of local leadership has been added to the project approach.

4. To coordinate and seek synergy with TABI and other development projects

Project follow-up: We Agree, and have added possible aligned work plans with TABI under project approach in the inception report as well as seeking possible partnerships with other upland projects

14.3 Organizational set-up

a) The workshop applauded project focus on:

1. Common Steering Committees and Boards at all levels, not least strong representation at local level with mechanism for strong collaboration with TABI and other projects
2. Involvement of other ministries and stakeholders

b) Recommendations and project follow up

1. To merge steering committee/coordination boards with TABI

Project follow-up: Will follow-up with MAF leadership regarding common national steering committees/executive boards as well as proposed agro-biodiversity sub-working group under the ANR Sector working and/or a separate technical working group

Annex 6. List of FAO short-term consultants

A	Completed short-term consultancies	Period	Draft TOR	Compl TOR	Status
1	IPM/FFS Strategy & Implementation Plan Regional <i>Mr. Marut Jatiket (Thai)</i>	June 2013 (June-Aug)	+	+	Report submitted Oct 2013
2	IPM Strategy & Implementation Plan <i>Mr. Bandit Keothongkham</i>	June 2013 (June-Aug)	+	+	
3	Assessment of aquatic Resources <i>Ms. Xia Khamvang</i>	June-Aug 2013 (Aug-Oct)	+	+	Report submitted Nov 2013
4	Assessment of Aquatic Resources <i>Ms. Bouaphan Yoysaykham</i>	June-Aug 2013 (Aug-Oct)	+	+	
5	Planning of TOR FFS/IPM, Regional <i>Ms. Tattmakorn Moechansuk (Thai)</i>	22-23 Nov 2013 (22-23/11)	+	+	LoA, Report & finalized Nov2013
6	Planning of TOR FFS/IPM, Regional <i>Ms. Supalak Nillit (Thai)</i>	22-23 Nov 2013 (22-23/11)	+	+	
7	Planning of TOR FFS/IPM, Regional <i>Ms. Jariya Pien-ngarn (Thai)</i>	22-23 Nov 2013 (22-23/11)	+	+	
8	Planning of TOR FFS/IPM, Regional <i>Ms. Arenee Upanisakorn (Thai)</i>	22-23 Nov 2013 (22-23/11)	+	+	
9	Master trainer TOT Vegetable IPM, Regional <i>Ms. Jariya Pien-ngarn (Thai)</i>	Dec13- Feb 2014 (18/2-12/4)	+	+	Report submitted & finalized 2014
10	Master trainer TOT Vegetable IPM, Regional <i>Ms. Supalak Nillit (Thai)</i>	Dec13- Feb 2014 (18 Feb-12 Apr)			
11	Entomologist Vegetable IPM, Regional <i>Ms. Arenee Upanisakorn (Thai)</i>	Jan 2014 (14-21 Mar 2014)	+	+	Report submitted & finalized Apr 2014
12	NABP II formulation <i>Dr. Eric Gardette (French)</i>	Jan-Feb 2014 (5/2-15/3, 2014)	+	+	2 nd Draft submitted October 2014
13	NABP II formulation <i>Ms. Kongpanh Kanyavong</i>	Jan-Feb, Part time (5/2-15/3 2014)	+	+	
14	Project identification: Conservation of fish and other aquatic resources <i>Mr. Somphan Phanosith</i>	June 2014 (16-21 June2014)	+	+	Report submitted & finalized Aug'14
20	IPM Training expert. Refresher IPM vegetables, Regional <i>Ms. Supalak Nillit (Thai)</i>	Beg of Dec part time (8/12 - 22/12 2014)	+	+	Report submitted & finalized Jan'15
23	Edit support on translation of PBSAP XK, <i>Mr. Koutiane Sittivong</i>	Mid Dec'14-Mid Jan'15. (10 days, Part-time)	+	+	Report submitted & finalized Apr'15
24	Assessment of Donglong - Dongsouth Ecology types and inputs to ITM assessments of Medical and Food Plants <i>Mr. Kittisack Phouthavong</i>	12 Days, April - May 2015	+	+	Report submitted & finalized June 2015
25	Master trainer TOT Rice IPM/FFS <i>Ms. Jariya Pien-ngarn (Thai)</i>	June-Aug (14/7-16/8 & 15/9 -5/10 2014)	+	+	Report submitted & finalized Aug 2014

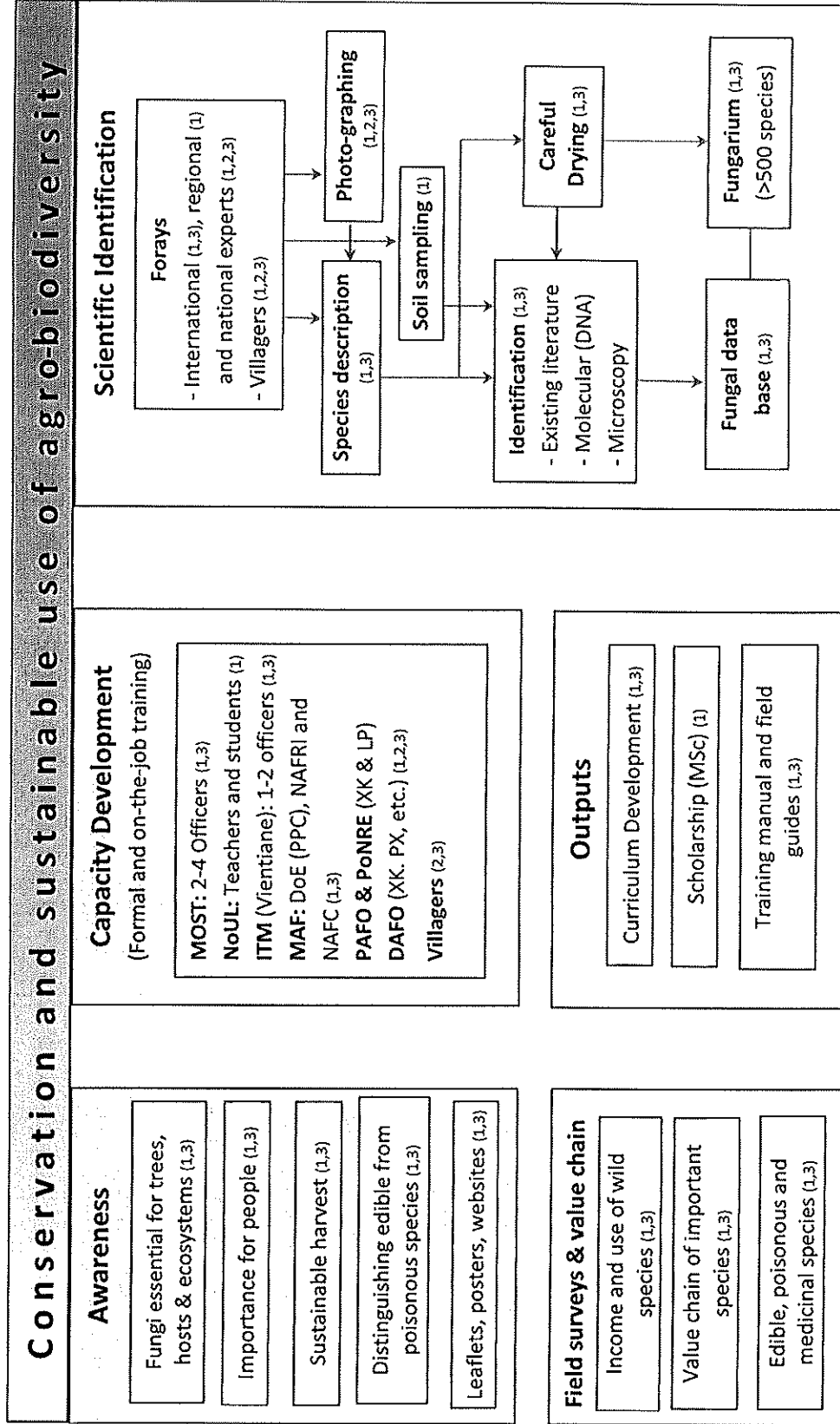
26	Master trainer TOT Rice IPM/FFS <i>Ms. Saijai Dumkongsoun (Thai)</i>	June-Aug (14/7-16/8 & 15/9 -5/10 2014)			
27	Resource person TOT Rice IPM/FFS, Entomologist, Gov. to Gov. <i>Ms. Voranart Kokyen (Thai)</i>	3 days (July)			
28	Resource person TOT Rice IPM/FFS, Ecologist, Gov. to Gov. <i>Ms. Sunisa Pewramphai (Thai)</i>	3 days (July)			
30	Training expert (Oyster mushrooms, PPC), National <i>Ms. Viengkham Sengsoulivong</i>	25/8'14 - 24/7'15 59 days 26/8'14 - 2/3'16 Extended end Aug'16 55 days	+	+	Ongoing (Part-time)
31	Fish Conservation support, XK Fish Ecologist <i>Mr. Somphanh Phanosith</i>	Nov'14 - Oct'15 Dec14- Nov 2015 Revised June 2015 25 days Extended	+	+	Ongoing (part-time)
32	Baseline & Techn. backstopping Medicinal Plants, Botanist. <i>Mr. Onevily Souliya</i>	Nov'14 - Oct'15 End Dec'14 - end Nov'15	+	+	Completed (part-time)
33	Finalization of NABP II, International <i>Mr. Iain Craig (English)</i>	End Dec'14 - end Mar'15 Extended to end Aug' 15	+	+	Final Draft submitted & finalized Feb. 2016
34	Finalization of NABP II. National <i>Ms. Kongpanh Kanyavong</i>	End Dec'14 - end Mar'15 Extended to end Aug' 15	+	+	
35	Forest types and mapping of Melientha, Botanist <i>Mr. Kittisack Phouthavong</i>	End Jun'15 – beg. Jul'15 10 days	+	+	Report submitted & finalized Aug 2015
40	Communication & awareness materials <i>Mr. Oscar Castellanos del Collado (Mexican)</i>	Aug- Dec 15 45 days	+	+	Report Completed Feb'16
42	Value chain of Matsutake, National <i>Mr. Viravanh Pannourath</i>	Oct-Dec 2016 (16 days)	+	+	Report Completed Feb'16
43	Establishment of four Ethno-botanical Plots in Pha Tak Ke Botanical Garden <i>Mr. Rik Kadella (plus nat, and int.inputs)</i>	Oct –Dec 90 Days	+	+	LoA Report Completed Feb'16
44	Tea specialist, Value chain analysis tea <i>Mr. Mike Carroll (American)</i>	Dec 2015 Extended to 31 Aug/16 15 days	+	+	Completed & finalized Sep'16
45	Advise on domestication of wild tea <i>Dr. Yang (Chinese) Gov-to-Gov</i>	Dec 2015 (5 days & inputs to 41)	+	+	Completed & finalized Jan'16
46	Identification of wild tea species <i>Dr. Chen (Chinese) Gov-to-Gov</i>	Dec 2015 (5 days & inputs to 41)	+	+	Completed & finalized Jan'16
B	Ongoing	Period	Draft TOR	Compl TOR	Status
36	Formulation of PBSAP, LPB <i>Mr. Adam Star (Canadian)</i>	Oct'15 – Apr'16 Extended end Sep'16	+	+	Ongoing (part-time)
37	Formulation of PBSAP, LPB <i>Ms. Ingrid Suter (Australian)</i>				
38	Formulation of PBSAP, LPB <i>Ms. Phoutsakhone Ounchith</i>				
39	Formulation of PBSAP, LPB				

	<i>Mr. Ignacio Tourino Soto (Spanish)</i>				
41	Edible and poisonous wild mushrooms, Taxonomist <i>Dr. Thomas Laessoe (Danish)</i>	Aug'15- May'16 Extended to 30 Sep'16 18 days	+	+	Ongoing (part-time)
D	PLANNED/UNDER CONSIDERATION	Period	Draft TOR	Compl TOR	Status
47	Lao Newt – Conservation of forest habitat		+		Canceled
48	Market development/ expansion/branding/ value chain of Khao Khai Noi				Canceled
49	Taxonomy of Wild Bananas (species/types/strains) Lao and Scientific Names – according to new nomenclature regulations)				Canceled
50	Eco-system services, International				Canceled
51	ABD Market development study including organic farming (together with other project and with reference to Output 2.5)				Canceled
52	Job's tears value chain and/or production constraints, National		+		Canceled
53	Status and recommendations of Tenure in PK and PX Districts (to make recommendations to pFLUPs)				Canceled
54	Inputs to review/impact/sustainability of IPM/FFS Activities		+		Canceled

Annex 8. Mid-term Review recommendations and status

Key Issues and Recommendations	Management Response	Tracking**			Status***	Comments
		Response	Key Actions	Timeframe		
Implementation and Execution Issues						
1. The ABP project should activate and utilize the PSC, representing a selection of key stakeholders in the agro-biodiversity realm. The PSC should serve its intended monitoring, oversight, information sharing, and stakeholder engagement functions. The PSC should be the main oversight mechanism for the project, with the opportunity to provide inputs to annual project workplanning, and approval of annual workplanning and budgeting. [UNDP, FAO, MAF]	Agree with recommendation.	UNDP and MAF to organize the 2014 annual review meeting jointly with the PSC meeting to discuss on the progress and workplan of the ABP for 2015 and other issues as required decision of PSC.	End of Q1 2015	MAF, UNDP, FAO	Completed	The Project Steering Committee/Annual Review Meeting was held on 27 February, approved the 2014 Annual report and the Annual workplan for 2015. It also discussed on the MTE recommendations.
2. This review recommends that UNDP, MAF, and FAO continue to urgently work together to respond to the audit recommendations, furthering the good progress made thus far, and	Agree with recommendation.	Organizing the institutionalize minimum regulate meeting/working session with ABP project team in order to support the project team in implementing the pending	11 Dec 2014	MAF, UNDP, FAO	Completed	MAF officially submitted statute of the audit action plan for 2012/2013 to UNDP which all action were implemented and supporting document to prove the implementation also provide

DARWIN (1), TABI (2) AND ABP (3)



Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsible unit(s)	Status***	Comments
<p>ensure that the same issues are not raised in the audit for 2014. [UNDP, FAO, MAF]</p>	<p>Response</p>	<p>Key Actions</p> <p>audit actions planned for 2012/2013 and ensure staff commit to the NIM SOP Policy.</p>				<p>as annexes of the letter to UNDP.</p>
<p>3. This review recommends that the ABP execution and implementation partners ensure prior to the 4th quarter of 2014 that adequate human resources will be available in the 2nd half of implementation to fully support highly dynamic and productive project execution, so that the project may achieve the greatest results possible. This could imply contracting additional qualified national-level PMU staff, but in the interest of time, under current circumstances this may just mean revising the TORs of the current CTA and ensuring the budget is available for the CTA position for the remainder of the project. As such, this review recommends a re-assessment of</p>	<p>Agree with the recommendation.</p>	<p>Performance evaluation of the current project staff and CTA will be made in collaboration between MAF, UNDP and FAO as well as identify the possibility to get more human resource to support the project team such as intern.</p>	<p>End of Q1 2015</p>	<p>MAF, PSC, UNDP, FAO</p>	<p>Completed</p>	<p>An additional staff, a National Operational and Technical Manager has been recruited and started at the Vientiane office, mid of May 2016 and quickly catching up with project activities. Budget revision for the CTA will be done as part of the FAO semiannual TA Progress report, July 2015.</p>

Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsible unit(s)	Status***	Comments
	Response	Key Actions				
the budgeting for the CTA position for the 2nd half of the project [UNDP, FAO, PSC]						
4. This review recommends that the main project execution and implementation partners take immediate action to clearly document and justify actual co-financing amounts committed, with the goal of ensuring that the originally planned co-financing is contributed by the end of the project [UNDP, FAO, PMU]	Agree with the recommendation.	UNDP to closely work with respective partners to annually estimate their co-financing contributions for inclusion in yearly progress reports.	End of 2015	UNDP, ABP, FAO	Completed	The CO-financing was estimated and report in the PRR2014/2015.
5. UNDP, FAO, and MAF should strengthen their monitoring and oversight of the project to ensure that the project is fully on-track, there are no bureaucratic delays, and any project risks are identified well in advance and proactively addressed. All project risks should be reviewed at the monthly technical coordination meetings, with discussion about concrete steps to address risks,	Agree with the recommendation.	UNDP, FAO and PMU will introduce new consultation and dialogue mechanism to increase oversight and proactive functions - e.g. weekly meeting/ updating/ working session for specific activities and site visit, apart from the monthly meeting.	31 November 2014	PMU, UNDP, FAO	Completed	Field monitoring by UNDP and ABP was organized and to be continuous implement from time to time during the remaining period.

Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsible unit(s)	Status***	Comments
<p>and follow-up before the next technical coordination meeting. This review also specifically supports the recommendation from the project audits that decisions made at the monthly technical coordination meetings must be followed-through on in a timely manner. [UNDP, FAO, MAF]</p>	<p>Agree with the recommendation.</p>	<p>Increased transparency and consensus by all partners will be pursued. Proposed activities will be carefully assessed from the view of strategic agro-biodiversity importance, relevance to project objectives and contributing to results. The annual work plan will be discussed in-depth at monthly/coordination meetings and presented as a draft to PSC and at annual review meetings to get their</p>	<p>End of Q1 2015</p>	<p>PMU UNDP and FAO</p>	<p>Completed</p>	<p>The t 2015 AWP was drafted in December 2014 and presented for discussion and approval from PSC at annual review meeting cum PSC meeting, on 27 February 2015.</p>
<p>6. ABP project workplanning should be done in a transparent and consultative manner with all key project partners, with final approval by the PSC. Workplanning for each year should be done in the 4th quarter of the previous year, for approval by the PSC before the end of the year. It must also be assured through the work planning process that the project activities remain focused, and contribute directly to project results targets. [PMU]</p>						

Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsibility unit(s)	Status***	Comments
	Response	Key Actions				
7. The ABP project should strengthen support and oversight of field-level activities through quarterly monitoring visits, linked with the district planning meetings. This may be necessary for the remainder of the project but at least should occur until the ABDI sub-projects are in mid-implementation. [PMU]	Agree with the recommendation. Mechanism to strengthen oversight of the field-level activities will be identifying in consultation with UNDP.	Quarterly mid-term monitoring visits schedules will be made in addition to requesting of progress report from the ABDI projects. UNDP, FAO and NPD to join the field monitoring visits as well.	End of Q2 2015	PMU	Completed	ABDI review/evaluations mission and workshop were organized in Q3 of 2015 and back to back with the UNDP visit for field monitoring.
8. It is recognized that the ABP project and TABI will not be carried out through a joint execution structure as originally planned, and any efforts to establish a joint execution approach with TABI should be dropped at this point. However, it is still necessary to improve coordination with TABI. The ABP	Not agree with the recommendation. As per ministerial notice ABP and TABI now has a joint PSC and joint activities will be	ABP and TABI to identify how to work together on land use planning activities and other activities. PMU will organize ARM/PSC meetings in January 2014.	End of Q1 2015	MAF, UNDP, FAO	Completed	The official nomination of joint PSC of TAB and ABP has been suggested by DoP, but still to be done. the However, ABP-TABI collaboration is continuing and end of 2014 ABP agreed to share Land Use planning costs with TAPI

Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsible unit(s)	Status***	Comments
<p>project could still potentially utilize the same PSC structure as TABI, as the national stakeholders are likely to be the same for the two projects, and leveraging the same oversight mechanism would support a programmatic approach. There should be a review of TABI and ABP workplans to ensure harmonization and avoid overlap. If logistically feasible, the ABP project and TABI should share physical office space, which would allow the national project coordinator to play his joint role more effectively as the manager of both projects, and which would strengthen coordination between the two projects. [MAF, PMU, UNDP]</p>	<p>further identified. Sharing the same office with TABI is still a challenge as the government has limited office space. The new NPC is playing an important role to ensure the coordination between the two projects.</p>	<p>Key intervention areas for the remaining period with clear budget allocations to all</p>	<p>End of Q2 2015</p>	<p>PMU, UNDP, FAO</p>	<p>Completed</p>	<p>The 2015 AWP with clear budget for each activity/output was prepared to with the intention of making a realistic</p>
<p>9. To ensure cost-effectiveness by the end of the project, the project team should focus on delivering project results within the</p>	<p>Agree with the recommendation.</p>					

Key Issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsible unit(s)	Status***	Comments
	Response					
<p>planned timeframe of the end of 2016. [PMU, UNDP, FAO]</p>		<p>outputs will be made, which UNDP and FAO will ensure that the activity plans are implementing as per approved annual workplans.</p>				<p>Implementation plans. 2015 Budget Revision is ongoing. Extension of project duration to end 2016 is being prepared.</p>
<p>10. The ABP project should use the GEF biodiversity focal area tracking tool (available on the GEF website, and completed previously by this project) as a guide toward results-based management, by drawing focus and attention to outcome level results focused on the implementation, enforcement, and monitoring of agriculture sector policies supporting conservation of agro-biodiversity. The tracking tool provides inputs to one of the portfolio level indicators for the GEF biodiversity focal area results framework, and is a basic but important means of results</p>	<p>Agree with the recommendation.</p>	<p>GEF biodiversity tracking tools table has been added as annex to the GEF annual report and the project team fill in information in the GEF biodiversity tracking tools for period of July 2013- June 2014.</p>	<p>28 Nov 2014</p>	<p>PMU, UNDP</p>	<p>Completed</p>	<p>GEF biodiversity tracking tools had been added to the GEF PIR Report for 2014 already.</p>

Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsible unit(s)	Status***	Comments
Response	Key Actions					
monitoring. [UNDP, FAO, PMU]						
Technical Focus						
<p>11. In the 2nd half of implementation the ABP project needs to have a focused and results-oriented approach; this can be guided by a revised project results framework, including a focus on GEF-biodiversity focal area strategic targets, such a progress toward a score of "6" for mainstreaming of agro-biodiversity in agriculture policies and regulatory frameworks (as assessed through the GEF biodiversity tracking tool), and hectares under sustainable management. This review, therefore, recommends that the project results framework be revised immediately with inputs from UNDP, FAO, and the PMU, for approval by the PSC in the 4th</p>	<p>No objection to the recommendation.</p>	<p>PMU, UNDP and FAO to review the suggestions in the Annex 9 of the MTR report and revise RRF of the project which including the revision of project targets, baselines, and indicators. After that PMU will present the revise RRF to PSC for approval.</p>	<p>End of June 2015</p>	<p>PMU, MAF, UNDP, FAO</p>	<p>Completed</p>	<p>The revised of Project RRF was developed in consultation with the UNDP Regional Advisor. The revised version was presented and approved by the PSC at the Annual Review Meeting.</p>

Key issues and Recommendations	Management Response*	Tracking**					
	Response	Key Actions	Timeframe	Responsible unit(s)	Status***	Comments	
<p>quarter of 2014. This review provides suggestions for revised results framework indicators and targets in Annex 9 of this review report. [UNDP, FAO, PMU]</p> <p>12. The project includes an information-sharing component, but little appears to have been done under this part of the project thus far. In the 2nd half of implementation the ABP project needs to emphasize a strategic focus on knowledge generation and information sharing. This should include a basic online presence, such as a minimal web page positioned on the overall MAF website. This could also include activities such as a brief quarterly electronic newsletter updating targeted stakeholders on project activities. By the 4th quarter of 2014 the ABP project should have a webpage as an information dissemination portal,</p>	<p>Partially agree with the recommendation.</p> <p>x.</p>	<p>ABP to contact MAF on possibility to discuss options for creating website under MAF website. Project's communication plan will be developed as well as publication materials e.g video, brochure, etc and to be discussed with MAF, UNDP and FAO to post information in their website.</p>	<p>End of Q2 2015</p>	<p>PMU, MAF,, UNDP, FAO</p>	<p>Completed</p>	<p>Communication strategy with detail action plan was finalized and has been implemented. Completed developed and update project brief, factsheet oyster mushroom, short successful story, several videos regarding field activities. Some videos were shown at the local TV channel, and posted in YouTube, with link at UNDP Websites and Facebook https://www.youtube.com/watch?v=ECrO6Vd1ays&index=6&list=PLzpz5NgJ2-dK7L2qzBjfsWnNlpVAvTNIJZ</p> <p>ABP also provide Local consultant to support the</p>	

Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsible unit(s)	Status***	Comments
<p>as a sub-page of a large relevant website, such as the MAF website. [PMU, MAF, FAO]</p>	<p>Response</p>	<p>Key Actions</p>	<p>Timeframe</p>	<p>Responsible unit(s)</p>	<p>Status***</p>	<p>Comments</p>
<p>13. To consolidate results and enhance the likelihood for the sustainability of project results, this review recommends that the project team and key stakeholders focus on documenting and publishing the lessons and experiences of the ABDI projects, ensure that the NABP II is finalized and adopted, and ensure that a few (i.e. 2-4) key publications documenting agro-biodiversity in Lao PDR are produced before the end of the project. The project could also, for example, provide information on the ABDI project experience to be included in the TABI newsletter. In addition, the project should produce a document highlighting the importance in Lao PDR of</p>	<p>Agree with recommendation, but also importance of ecosystem services should be added – and where feasible have joint technical reports with TABI.</p>	<p>ABP to hire consultants to evaluate result/impact/lessons learned of ABDI activities - ABP, assisted by FAO and consultants, will prepare key technical papers which will be included in the communication strategy.</p>	<p>End 2015</p>	<p>PMU, UNDP, FAO</p>	<p>Ongoing</p>	<p>improvement of the NAFRI website. The finalization of technical reports is an ongoing activity and expected to be finalized by end August.</p>

Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsible unit(s)	Status***	Comments
	Response	Key Actions				
<p>agro-biodiversity for resilience and adaptation to climate change at least six months prior to project completion. [PMU, NAFRL, FAO]</p> <p>14. The project should plan for a specific external independent "sub-evaluation" of the ABDI project portfolio, upon the completion of a majority of the sub-projects. This would not need to be done by an international consultant and in fact it would likely be much more effective for it to be done by a Lao speaker who understands the rural context. The evaluation should systematically document the results and lessons of the sub-project portfolio, including outcome and impact level results. This "sub-evaluation" would be a critical input to the ABP terminal evaluation, as the terminal evaluation would not have the</p>	Agree with the recommendation.	To be implemented as part of the action under recommendation 13 above.	End of 2015	PMU, UNDP, FAO	Ongoing	The implementation of the local activities are delegated to local authorities – and the reviews and final evaluations is done by the Vientiane team.

Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsible unit(s)	Status***	Comments
<p>capacity to conduct an in-depth evaluation of the sub-projects. Similar documentation of sub-project portfolio results have been carried out in UNDP-GEF projects in Bulgaria (GEF ID #2730), Croatia (GEF ID #2105), and Hungary (GEF ID #1527). [PMU, PSC]</p>	<p>Response</p>	<p>Key Actions</p>				
<p>15. This review recommends that the project shift the focus of Outputs 2.5 and 2.6 to address improving the understanding of the economic incentives and market forces that threaten various aspects of agro-biodiversity in Lao PDR, with a primary focus on crop and crop-associated biodiversity. Economic incentives and market forces are one of primary drivers of threats to agro-biodiversity as outlined in the project document, but do not appear to be clearly understood or documented. This is a</p>	<p>Agree with recommendation, but should also include aquatic organisms and done in collaboration with TABI.</p>	<p>- ABP to revisit the activities under Output 2.5 and 2.6 and redesign the focus of the activities, which will be done together with the revision of RRF.</p>	<p>End of Q2 2015</p>	<p>PMU, MAF, UNDP, FAO</p>	<p>Completed</p>	<p>The project's result framework has been changed.</p>

Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsible unit(s)	Status***	Comments
	Response	Key Actions				
<p>significant gap in the project's logic chain. [PSC, UNDP, FAO]</p> <p>16. This review also recommends that UNDP and the ABP project take whatever steps necessary to overcome any bureaucratic issues to the ABP project providing financial support for the organization of the agro-biodiversity sub-sector working group meetings, as this is clearly and specifically indicated in the project document. This would also provide the ABP project with the opportunity to ensure that the working group fulfills its opportunity to be a dynamic strategic guiding body. [UNDP, MAF-Dop, PMU, FAO]</p>	Agree with the recommendation.	ABP to support MAF, UNDP and FAO in providing technical and strategic inputs to the SWG ABD	End of 2015	PMU, FAO, UNDP	Completed	UNDP, FAO and the project team regularly participate in sector and subsector working group meetings. Further, FAO, since mid of May 2015, has become co-chair of the subsector working group on agrobiodiversity with ABP supporting the secretariat.
<p>17. The project results focus must be strengthened, and consequently the project would benefit from an internal discussion to generate a clearly articulated project logic</p>	Further discussion with BRH is required.	- UNDP to discuss with Regional Technical Advisor on how to proceed with this.	End of June 2015	UNDP	Completed	In consultation with the regional technical advisor, the project result framework has been changed and approved by the

Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsible unit(s)	Status***	Comments
chain, such as can be generated under the GEF Independent Evaluation Office "Review of Outcome to Impacts" methodology.1 [UNDP, FAO, MAF]	Response	Key Actions				PSC.
18. While integrating biodiversity considerations into relevant sector policies, plans, and legislation is a major focus of the project, this review recommends that the project should immediately apply a very focused scope in working on this issue, only taking the opportunity to provide inputs to relevant new policies being developed or revised. The project likely does not have the time or resources to carry out a comprehensive adjustment or revision to all Lao	Agree with recommendation, with the addition of more information sharing by involved parties.	PMU, MAF, UNDP and FAO to assist to identify the key biodiversity related legal framework at monthly meetings, that can be commented and/or supported by the project.	End of Q2 2015	PMU, MAF, UNDP, FAO	Completed	List of legislative related to agro-biodiversity has been identified. The project is continuously providing inputs to the ongoing legislation as well as policy and strategy work. Recently (May 2015), the project has, through FAO, provided inputs and suggestion to the draft Natural Resources and Environment Strategy and MoNRE Vision towards 2030. The ongoing formulation of the NABP-II is also generating an excellent platform for dialogues

1 See <http://www.thegef.org/gef/ROtI>.

Key issues and Recommendations	Management Response*	Tracking**	Timeframe	Responsibility unit(s)	Status***	Comments
	Response					
<p>policies and legislation currently on the books that are related to agro-biodiversity. [PSC, MAF, PMU, FAO, UNDP]</p> <p>19. National policy priorities in the agriculture sector tend to relate to national production targets, and the conditions and inputs necessary to achieve those targets. This can make it difficult for broader critical agriculture sector goals, such as conservation of Lao PDR's globally significant agro-biodiversity, to be given sufficient attention and priority. This review recommends that the ABP project support the agro-biodiversity sub-sector working group to develop national targets for production, and conservation targets. [PMU]</p>	<p>Agree with the recommendation but should also be linked to the NABP..</p>	<p>ABP continue to support the government to develop the NABP and ensure endorsement and implementation will be led by the government. FAO and UNDP to propose add national agro-biodiversity targets in the workplan of the SSWG ABD.</p>	<p>offend of June 2015</p>	<p>PMU, UNDP, FAO</p>	<p>Completed</p>	<p>ABP has extensively working with NAFRI to develop, and finalize the NABP. Discussion on putting NABP into central for guiding the implementation of ABD works in Lao PDR was made at the SSWGABD Meeting in Q3 of 2015. ABP International Consultant and local consultants has been closely working with government agencies to update and revise the final draft of draft NABP report and to be resubmit to government for consideration and endorsement.</p>

* Unit(s) assigned to be responsible for the preparation of a management response will fill the columns under the management response section.

**** Unit(s) assigned to be responsible for the preparation of a management response will be updating the implementation status. Assigned with an oversight function monitors and verifies the implementation status.**

***** Status of Implementation: Completed, Partially Completed, Pending**

