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Khoun Xe Nongma Management Plan Bualapha District, Khammouane Province

Prepared by :
Provincial Division for Protected Area Management
Provincial Agriculture and Forestry Office, Khammouane Province

With funding support from
Environment Protection Fund (EPF)

November 2010

Khammouane Province
PAFO

No..... Dated.....

Agreements on Adoption of Khoun Xe Nongma Management Plan

- In pursuance of the Forest Strategy for the Year 2020
- In pursuance of the Forestry Law No. 04/NA, dated 24/12/2007
- In pursuance of the Law on Wild Animals and Aquatic Resources No. 07/NA, dated 24/12/2007.

Provincial Agriculture and Forestry Office agrees to

- Article 1.** Khoun Xe Nongma Management Plan is adopted and officially used for the period of 5 years (2011-2015).
- Article 2.** Assigned to Provincial Division for Protected Area Management to lead the implementation of Khoun Xe Nongma Management Plan to be successful.
- Article 3.** Concerned Departments at Provincial and District levels to have a cooperative role in implementation of the plan based on their roles and responsibilities.
- Article 4.** This agreement is effective from the date of signature.

Thakhek, Dated.....
Director, Provincial Agriculture and Forestry Office

Foreword

In order to implement the national policies of Lao PDR on National Forest Strategy for the year 2020, 4 goals and 13 measuring articles of the Ministry of Agriculture and Forestry (MAF) on the sustainable use of natural resources have been developed as for protection of biodiversity, to increase and maintain forest cover and to secure benefits of local people. This management plan has been developed through the principles of stakeholder participations from village to Kum Ban, district and province focusing on the practice of local people. This document is important as reference materials for the implementation of the protected area management.

Therefore, Provincial Division for Protected Area Management would like to thank those who participated in a series of consultation workshops on the management plan development at the village, district, province and national levels; particularly the authorities of Nongma, Balang, and government sector in Bualapha District. Also, thanks to the technical assistance from International Union for Conservation of Nature (IUCN) and funding support from the Environment Protection Fund (EPF).

The goal of this management plan is to protect biodiversity – fauna, flora and watershed, and to be used in a sustainable manner and for the benefits of local people. The biodiversity protection and management of Khoun Xe Nongma Provincial Protected Area under the ownership of local authority. Also, preparedness of basic needs for the protected area management and proposing the area to be a national protected area in the future.

The Khoun Xe Nongma Management Plan is 5 year period from 2011-2015. The plan is assigned to the Provincial Division for Protected Area Management to translate correctly and make consistent with local conditions. This management plan should be reviewed and revised every 5 years to ensure that it remains relevant over time.

Thakhek, Dated.....
Head, Provincial Division of
Protected Area Management

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This management plan was made possible by the participation and contributions of all concerned organisations from Kum Ban to district and provincial levels including key relevant departments at national level. Local authorities at Kum Ban and village levels made valuable contributions in a number of consultation workshops that aimed to build a vision and direction for the protection and enhancement of biodiversity in Khoun Xe Nongma PPA. To draft the plan, fieldwork and consultation workshops at village, Kum Ban and district levels was conducted by the technical team as below:

Sisomphone Soudthichak	Provincial Division for Protected Area Management
Phetsamon Oudon	Provincial Division for Protected Area Management
Chounlamany Xayalath	Division of Forest Resources Conservation, DoF
Simon Khamsakchaleun	Provincial Division for Protected Area Management
Max Thiemmanivong	Provincial Division for Protected Area Management
Sengchanh Sisoumang	District Agriculture and Forestry Office, Bualapha District
Xayasan Sisomboun -	District Agriculture and Forestry Office, Bualapha District
Dr. Phaivanh Phiapalath	IUCN Lao PDR

Thus, the Provincial Division for Protected Area Management of Khammouane Province would like to thank all the participants and the technical team who contributed to the preparation of this management plan.

Abbreviations

CITES	Convention on International Trade of Endangered Species of Wild Fauna and Flora
DAFO	District Agriculture and Forestry Office
DFRC	Division of Forest Resource Conservation
DoF	Department of Forestry
DoFI	Department of Forestry Inspection
EIA	Environmental Impact Assessment
EPF	Environment Protection Fund
FDZ	Focal Development Zone
GPS	Global Positioning System
IUCN	International Union for Conservation of Nature
Lao PDR	Lao People's Democratic Republic
LEnS	Lao Environmental and Social Project
LFA	Land and Forest Allocation
MAF	Ministry of Agriculture and Forestry
NPA	National Protected Area
NTFPs	Non-Timber Forest Products
PAFO	Provincial Agriculture and Forestry Office
UXO	Unexploded Ordnance
WCS	Wildlife Conservation Society
WWF	World Wide Fund for Nature

Executive Summary



Khoun Xe Nongma Provincial Protected Area (PPA) was granted provincial conservation status with an area of 68,000 ha in 2006. It is located in Bualapha District, next to Phong Nha Khebang Natural World Heritage Site in Vietnam.

Khoun Xe Nongma PPA is a mountainous area, at a high elevation and is located far from the district with difficult road access. Villages of the protected area consist of 3 main village clusters known as Nongma, Balang and Houyhet, a total of 8 villages (or 15 including small villages) and about 2,000 people. They are Makong and Chilee ethnic groups, with have strong traditional beliefs and rely mainly on hill rice cultivation.

Today, Khoun Xe Nongma PPA is still abundant in biodiversity and comparable to some designated national protected areas in the country since a high number of key wildlife species present in the area. It has approximately 70 mammals, 350 birds and 60 reptiles. In addition, there is believed to be a number of fish species but a detailed study has not been conducted. Flagship species of the area are Saolas, Gibbons, Large-antlered Muntjac and Otters. The important and threatened wildlife species according to the IUCN Red List include 2 critically endangered species (Saola and Chinese-striped Box Turtle), 5 endangered species, 13 vulnerable species and 8 near-threatened species. Apart from those flagship species, Khoun Xe Nongma PPA serves as an important habitat for wildlife species including birds such as wet forest, dry evergreen forest, mixed forests. High value trees found in the area are Mai Doulai, Mai Ketsana (*aquilaria sp*), Mai Moun, Mai Dou, Mai Tae, Mai Sikhaitoon. In addition, the protected area is important watershed for downstream agriculture, fisheries, livestock raising and local livelihoods for hundreds of thousand people living along the river bank (all central Lao which covers seven districts of two provinces).

However, the area is highly threatened specifically due to poachers from neighbouring country that hunt with snares and log trees of high value, shifting cultivation by local villagers is found in the western area. Challenges and direct threats to the protected area are illiteracy, poor access to public services such as roads, education, health and communication. The illiteracy rate is high, crop production is low, there is a lack of alternative livelihoods, unexploded ordnances remains high in the area, suitable cultivated land (e.g. paddy land) is limited, and road access is poor in all remote areas.

The management activities of Khoun Xe Nongma PPA has just begun in 2009. Now, only three staff are assigned to work for Khoun Xe Nongma PPA, and some necessary field equipment is available. Major activities conducted so far in the area were staff trainings, socio-economic surveys, wildlife surveys, demarcating the PPA boundaries with signboards as well as patrolling in the high threat zones of the area.

In order to facilitate a better management of the protected area, Provincial Division for Protected Area Management as well as provincial and district authorities have developed the management plan with the technical assistance from IUCN. The draft management plan was developed by the technical team through a series of consultation workshops at village/village cluster, district and provincial levels. A vision for the management plan development was the protection and management of Khoun Xe Nongma PPA through a local ownership approach and to local benefits. Also, the goal of the five-year management plan is to protect and manage nature's richness – flora, fauna and watershed to ensure sustainable use and to benefit local people. The Management Plan consists of 5 chapters: introduction, background, management plan, administrative and evaluation. The chapter 3 the Management Plan to achieve 3 objectives: (i) increase population of key wildlife species as well as the protection of ecosystems and food sources for local communities; (ii) reduce the use of forest resources at

time to increase of local people's participation and (iii) staff and Khet teams able to implement the management plan in the future.

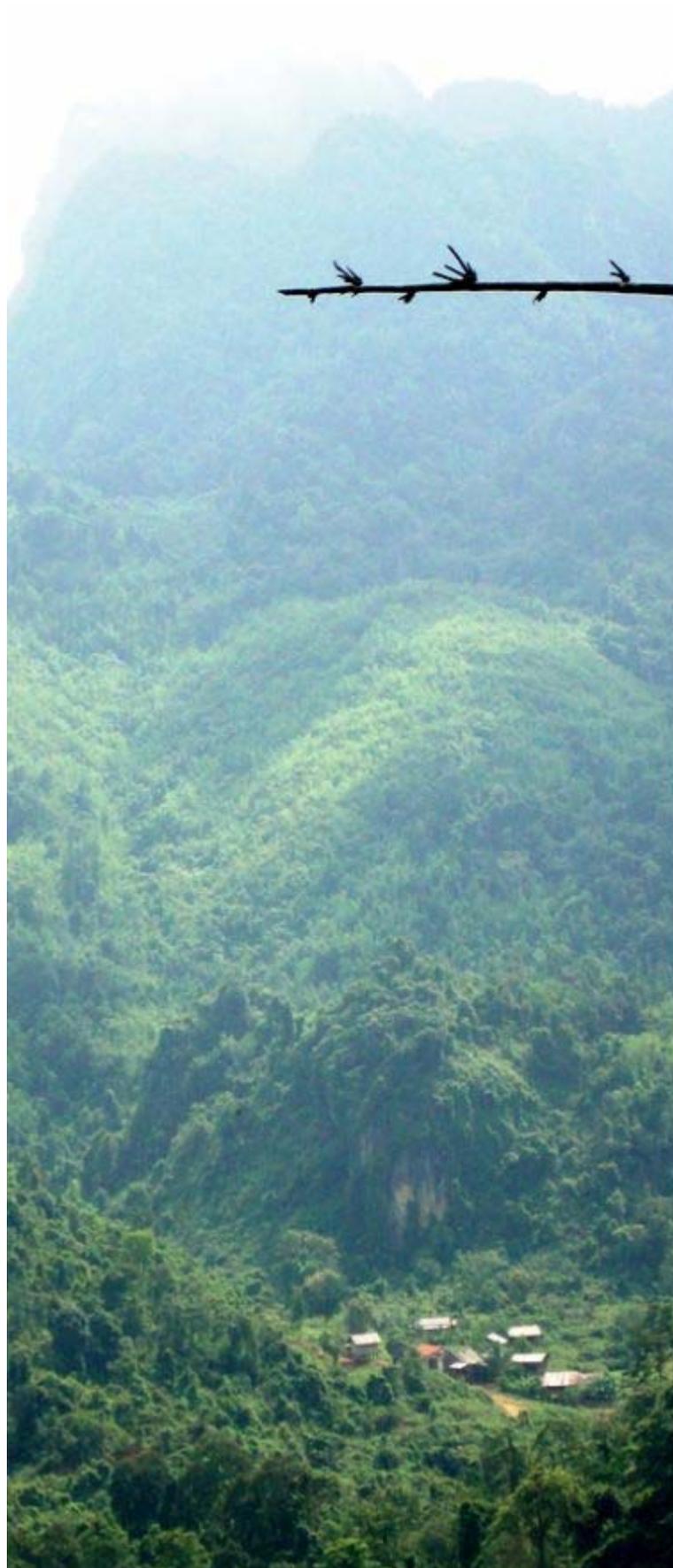
Under each objective, activities and priorities and responsible agencies are identified (see Table 12). The most important priority of the management plan is to curb poachers from neighbouring country. Capacity of staff and khet teams to patrol, implement land use planning and zoning for the management, law enforcement and outreach program should be improved.

In addition, for measuring a success the management plan has identified indicator species including Gibbons, Douc Langurs, Barking Deer and Otters for monitoring and evaluation. The goal is for the population of these species to increase on average at 10% by 2015. At the same time, threat will decrease by 50%. Staff and Khet team have to gain a better knowledge of protected area management at 50% based on pre and post assessment. Importantly, the trained people can implement the plan themselves.

The management plan and for 5 year period requires an indicative budget of US\$ 1,570,800. The budget will be used including for office facility development and field equipment. If the budget is insufficient, only high priority activities will be conducted such as patrols, land use planning and zoning for the management and outreach program. If funding is available to support the implement of the management plan for the first 5 years the protected area could have some basic facilities. Therefore, as to maintain the management activities need to solicit a budget of US\$ 120,000 per year.

Chapter 1. Introduction

This part provides an overview of Khoun Xe Nongma protected area, the site history and importance, the need for the management plan development and objectives of the site establishment. It is also described the process of the management plan development and listing the site management committee.



Khoun Xe Nongma PPA was given its provincial conservation status in 2006 by the Provincial Governor' Agreement dated January 24th, 2006. With a total area of 68,000 ha, located in Bualapha District, it borders Vietnam to the east, Nam Chala focal development zone (FDZ) to the west, Laving Laveun PPA of Savannakhet Province to the south and Hin Namno National Protected Area (NPA) to the north.

Khoun Xe Nongma PPA is mountainous area with high altitudes and is located far from the district with difficult road access. Villages of the protected area consist of 3 main village clusters known as Nongma, Balang and Houyhet, a total of 8 villages and about 2,000 people. The people are from the Makong and Chilee ethnic groups, have strong traditional beliefs and rely mainly on hill rice cultivation. Bualapha District is one of 47 poorest districts of Lao PDR and the village clusters located in the area are the poorest of the district.

Khoun Xe Nongma PPA is still abundant in biodiversity. Its biodiversity is comparable to some national protected areas in the country due to the high number of key wildlife species still present in the area such as Saola, gaurs, Large-antlered Muntjac, Gibbons, douc langurs, Black Langurs, Serows, 4 species of hornbills etc. There are wet forest, dry evergreen forest and mixed forests which are important habitats for number of wildlife species including forest birds. Recent wildlife surveys estimated that there are 70 mammals, 350 birds and 60 reptiles in the area. Apart from this, there may be many fish species but detailed surveys have not yet been undertaken. Wildlife species in the area that are important and under threat according to IUCN Red List include 2 critically endangered species (Saola and Chinese-stripped box turtle), 5 endangered species, 13 vulnerable species and 8 near-threatened species. High value trees are found in these forest types include, Mai Doulai, Mai Ketsana *aquilaria crassna*, Mai Moun *Elaeocarpus sianensis*, Mai Dou *Dipterocarpus macrocarpus*, Mai Tae, Mai Sikhaitoon. In addition, the protected area is an important watershed for down stream agriculture, fisheries, livestock raising and local livelihoods of hundreds of thousand people who live along the river (which runs through all of central Lao, including seven districts of two provinces namely Khammouane and Savannakhet Province. Khoun Xe Nongma PPA has high potential to be proposed as a national protected area in the future. In order for the PPA to be prepared to become an NPA, this management plan is needed to define the direction of conservation and improve the staff capacity.

Many issues and threats make it challenging to protect and manage the natural resource of the Khoun Xe Nongma PPA. The main threat is poaching by some groups of people crossing from neighboring country for snaring and illegally logging timber. Shifting cultivation of local villagers is another issue. Other challenges include ethnicity, strong taboos, the villagers have low education and lack of schools, public health services and communication. The Illiteracy rate of the local villagers is very high, rice production is low, there is a lack of livelihood alternatives and unexploded ordnance remains a big problem. In addition, there is a lack of suitable land for intensive agriculture practice such as paddy land, and poor road access.

With technical assistance from IUCN this management plan has been prepared by the Provincial Division of Protected Area Management in Khammouane, Provincial Agriculture and Forestry Office, and Bualapha District Agriculture and Forestry Office. A series of consultation workshops were conducted at village, village cluster, district and provincial levels.

In order to create succinct and user-friendly materials for local staff at the district levels, this Management Plan was developed as a precise, strategic framework for effective management of the protected area. However, this plan does not provide the detailed information necessary or utilize a wholly scientific approach. It focuses on the implementation of local people and local authorities. In the future, the Management Plan needs to be revised to

define indicators of success so the plan can be evaluated following a more scientific approach and in condition that the staff has more and sufficient capacity.

The Management Plan consists of 5 parts: an introduction, background, the management plan, administrative and evaluation.

The objective of the development of this Management Plan is to provide a strategic direction to put into place a systematic approach that is effective and benefits for local people. The plan requires balancing conservation and livelihood development for local people living adjacent to the protected area.

1.1 Objectives of Khoun Xe Nongma PPA establishment

There are three main objectives for establishment of this protected area as below:

1. Protection of the area's biodiversity and natural values, especially the forest, plants and wildlife.
2. Ensure the use of forest resources, wildlife in a sustainable manner and continue to supply the resources to local villagers.
3. Protection of Xe Bangfai watershed, historical sites and educational and tourism sites.

Therefore, any development activities that might generate negative impacts on the protected area should not be allowed except those that receive approval from the government with a completed Environmental Impact Assessment (EIA) and detailed cost and benefit analysis. Sound mitigation measures that meet with international EIA standards should also be required.

All law enforcement should follow the regulations of protected area management, such as Forestry Law no. 04/NA, dated 24/12/2007 that requires National Protected Areas to have zoning, and Law on Aquatic and Wild Animals no. 07/NA, dated 24/12/2007 which defines wildlife categories for conservation particularly the list of prohibited species (not allow to hunt, trade and possess). Details of laws and policies are provided in item 3.2.

1.2 Development of the Plan

To achieve the objectives of the protected area, and the management activities to be continuous, this management plan has been developed in consultation with stakeholders at the village, village cluster, district and province.

Thus, the Khoun Xe Nongma Management Plan was prepared for five-year period (2010-2015) with the goal to protect biodiversity – fauna, flora and watershed, and to be used in a sustainable manner and for the benefits of local people. This management plan should be reviewed every 5 years, in order to make any adjustments to suit the current situation, by working with relevant organizations. Data and results from assessments and lessons learnt from the previous plan's implementation will be important to feed into the further development and review of the next 5 year plan.

1.3 Prioritizing setting of the Management Plan

Some activities in the plan are considered more important and of higher priority than others. Therefore, the degree of priority is defined by number as below:

1 = High; 2 = Medium and 3 = Low.

Some key activities are not classified as high priority; however, some specific activities in that work might be urgent to be conducted (see Table 12). If any activities classified as the

priority 1., should basically be conducted in the first year. Meanwhile, some activities require to be carried out continuously such as patrolling and biodiversity monitoring. Therefore, in order to make it practical the management plan defines time, budget and responsible agencies (see Table 12).

1.4 Management Committee of Khoun Xe Nongma PPA

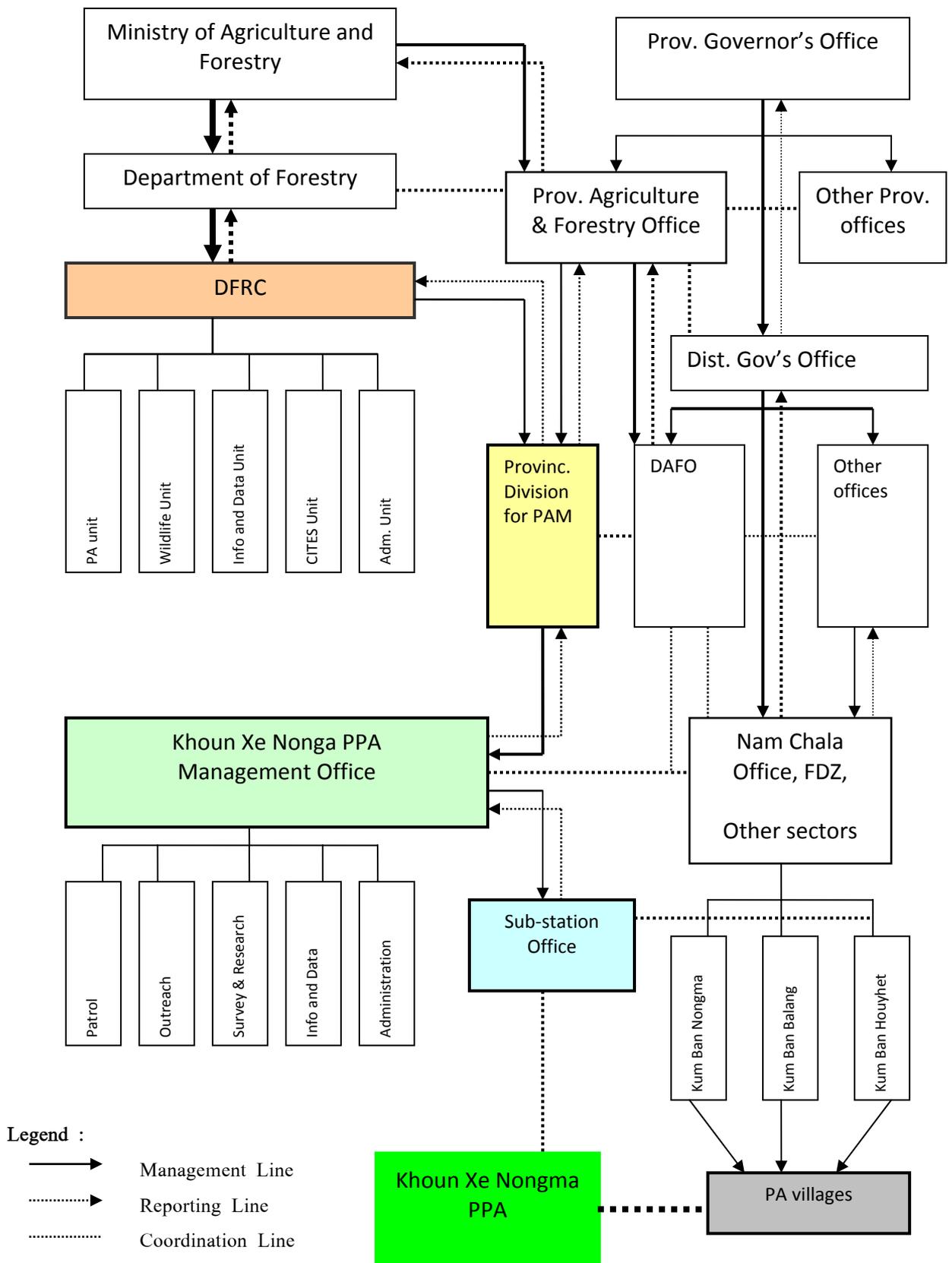
The plan has defined management committees for assisting with management and providing advice for the implementation of the plan. The committee will be invited by PPAM to participate and host in all consultation workshops/discussions related to the Khoun Xe Nongma PPA. Detailed member lists are provided below:

Table 1: Khoun Xe Nongma Management Committee

Members	Contact number
1. Provincial Division for Protected Area Management, Khammouane	
2. Provincial Forestry Section, Khammouane	
3. Provincial Forestry Inspection Office, Khammouane	
4. District Agriculture and Forestry Office, Bualapha	
5. Bualapha Governor's Office	
6. Boualapha Army Office or at Nam Chala FDZ	
7. Bualapha Police Office or at Nam Chala FDZ	
8. Bualapha Lao Women's Union Office or Nam Chala FDZ	
9. Bualapha Youth Union Office or Nam Chala FDZ	
10. Bualapha National Front for Construction	
11. Bualapha Education Office	
12. Bualapha Health Office	
13. Bualapha Commerce Office	
14. Bualapha Tourism Office	
15. Nam Chala, Head	
16. Kum Ban Nongma, Head/representative	
17. Kum Ban Balang, Head/ representative	
18. Kum Ban Houyhet, Head/ representative	

Remarks: DFZ = Focal Development Zone

1.5 Structure and Coordination Relationship



Chapter 2.

Background

This part presents up to data that is important and relevant to this management plan including geography, basic infrastructure, population, culture, agriculture, land use, biodiversity, conservation value, important site for conservation, threats, trends of changes in wildlife, potential livelihood development and management up-to-date of Khoun Xe Nongma PPA.



teachers. Ban Khouy Map and Balang have schools but it is broken and there have been no teachers for some years. Therefore, children no chance to attend a school some years and now no one completes up to at grade 2. Most of the village teenagers are illiterate with only 4-5 people in Ban Nongma who are able to do further study at grade 5 in the Nam Don Ethnic School in Thakhek district. Illiteracy makes it difficult for outsiders to communicate with the villagers in Lao language, particularly with women (few of whom can write Lao language in the PPA villages).

Public health is poor with only one health center available at Nam Chala FDZ. It has two standing medical doctors who are able to provide some basic health care. If anyone has a serious sickness or their family has enough money, they will prefer to get service in Vilabouri District or even Quang Binh Province in Vietnam.

2.3 Settlement, Ethnicity and Population

Khoun Xe Nongma PPA has a total of 8 villages (or 15 including small villages), 401 houses and about 2,019 people. Most villages are located close to road and Xe Bangai River. Many of these villages of the protected area as 5 villages (9 small villages) are located inside. Another 3 villages (6 small villages) are located outside the area and they use forest resources in the protected area (see Table 2, Figure 2). Major ethnicity are Chilee but Kum Ban Nongma has also Makong. They believe in ghosts, strong traditional beliefs/taboo, which is easily observed from their health treatment using mostly spiritual doctors.

Usually, villagers rely on nature for living and collecting forest resources for subsistence other than selling. Once due to difficulty in road access, no outsiders coming to purchase forest products in their villages. However, three years ago villagers in the area experienced in harvesting Mai Doulai for sale and that they gained some income made subsequently now this tree species has been completely harvested. The villages in Kum Ban Nongma which is close to the Vietnam border do some trading and these people are considered better in term of self-development compared to those people in other areas of Khoun Xe Nongma PPA.

Table 2: Village types in Khoun Xe Nongma PPA

Village cluster and village	GPS Coordinate	Household	Village classificaiton			Popul.
			inside	adjacent	outside	
Nongma cluster		201				953
1. Nongma	17°14'32 N/106°09'15 E, 496 m asl					
Ban Nongma	17°14'32 N/106°09'15 E, 496 m asl	45			✓	225
Ban Kang		25			✓	121
Ban Thong		37		✓		226
Ban Pak- ak		28		✓		147
Ban La Ngi		22		✓		98
2. Ban La bouy	17°11'39 N/106°04'40 E, 264 m asl	44			✓	136
Balang cluster		129				628
3. Balang	17°08'53 N/106°02'00 E, 490 m asl					
Ban Balang	17°08'53 N/106°02'00 E, 490 m asl	25	✓			182
Ban Cheng		8	✓			52
4. Pa Sieo	17°09'22 N/106°07'07 E, 272 m asl					
Ban Pa Sieo	17°09'22 N/106°07'07 E, 272 m asl	18			✓	
Ban Katou	17°08'54 N/106°08'02 E, 268 m asl	6			✓	
5. Khouy mab	17°09'24 N/106°09'48 E, 334 m asl	12	✓			60
6. Chanon	17°08'47 N/106°15'58 E, 362 m asl					
Ban Chanon	17°08'47 N/106°15'58 E, 362 m asl	29	✓			130
Ban Taloua	17°09'45 N/106°15'59 E	7	✓			65
7. Ban Pa keun	17°06'55 N/106°13'21 E, 506 m asl	24	✓			139
Houyhet cluster		71				483

8. Houyhet	17°05'50 N/106°12'25 E, 479 m asl	71				438
Ban Houyhet	17°05'50 N/106°12'25 E, 479 m asl	33	✓			
Ban Vat		27		✓		
Ban Kokfang		6		✓		
Ban Vangkhou		5		✓		

Remarks: the outside village is the village located about 1 km away from the protected area boundary.

2.4 Cultures and Beliefs

The majority of the population is Chilee and Makong who believe in ghost. They have strong traditional beliefs particularly Kum Ban Balang and Nongma which is obviously observed from their health treatment using mostly spiritual doctors. Women in this area are shy to speak with guests.



Figure 2. Map of village locations in Khoun Xe Nongma PPA

The women show high respect for their husbands or elders in their families and do usually not join men's social discussions, particularly with guests. However, villagers in Kum Ban Nongma and Houyhet have development themselves at some level. The rationale of high illiteracy in this area, strong traditional beliefs makes them to improve their family status slowly specifically Kum Ban Balang such as Ban Chanon, Ta Loua, Pa Sieo and Pa Keun.

A historical site is found in Kum Ban Nongma (by Nam Lanum) - the cave of ex-leader Mr. Nouhak Phoumsavanh which he used during the Indo-China War. In addition, there is another cave high in the limestone nearby Ban Nongma which local villagers believe is a sacred site. Also, characteristic of ethnic groups in the area is part of historical culture where local songs exist in Ban Pak Ark and Ban La Ngi. This is potential for tourism purpose in the future.

2.5 Agriculture

Agriculture is essential to local livelihoods as hill rice cultivation is only the way of practice for subsistence except Ban Houyhet where paddy land available other villages and village do paddy cultivation. Both paddy and hill rice cultivation is rain-fed and use local rice varieties. Hill rice productivity is low (1.5—1.7 ton/ha) and probably because of rice pests, insects that destroy rice roots while the plants are flowering and a long period of drought. In addition, crops being raided by wildlife has been reported such as by monkeys, wild pigs, munia sps. Also, paddy rice productivity looks low (only 2.8 tons/ha). Second crop apart from rice is rarely. Planted, Livestock raising is not very productive because of widespread disease in Kum Ban Nongma for pigs and poultry, in particular. However, raising large livestock e.g cows, is productive and provides important incomes for some families. Still, poor families have no opportunity to get enough cash to buy a large animal to raise.

2.6 Land and Land Use

In the protected area, all land is a collective asset while local people have rights to use it for agricultural purposes. Most areas are used for rice cultivation and some plant plantation. So far, land use planning activities have not been completed in the area. Therefore, villagers selecting new forest areas for hill rice cultivation has occurred in Kum Ban Balang and Nongma. Basically, soil is fertilized particularly in Kum Ban Nongma that suitable for plantation such as cassava and corns. However, no any case of giving land concession for development and cash crop plantation projects in the area.

2.7 Biodiversity

Forest : Khoun Xe Nongma PPA is part of the Annamite Mountain Range, the wet forest is considered healthy and covers a major area of upper Xe Bangai River, the high land area to the east. Some high value trees are reported in the Upper dry evergreen, mixed deciduous forests. In hill evergreen forest it is possible to find some endemic tree species. In addition, bush forest found in lowland area in the west and in Kum Ban Nongma have useful habitat for some bird species. The wet forest and upper dry evergreen forest are an important habitat for the critically endangered Saola. In terms of tree species, it is estimated that about 500 plant species can be found in the area, of which, the rare and high value trees are numerous, such as Mai Doulai, Mai Ketsana *aquilaria crassna*, Mai Moun *Elaeocarpus sianensis*, Mai Dou *Dipterocarpus macrocarpus*, Mai Tae *Dalbergia conchinchinensis*, Mai Sikhaitoon. In addition, the protected area is important to the watershed.

Nonetheless, some forested areas have been converted into agriculture land, for rice cultivation in Kum Ban Balang because no suitable land is available for paddy cultivation. Some high value trees have been completely over harvested such as Mai Doulai, Mai Ketsana. It is believed that only young trees of Mai Ketsana available in the area therefore the young tree will take 30 years or so to grow and that being able to reproduce naturally.

Wildlife : Khoun Xe Nongma PPA provides suitable habitats for many key wildlife species because of its diverse and unique habitats, with various altitudes and microhabitats including riverine habitats and limestone. Recent wildlife surveys estimate that there are 70 mammals, 350 birds and 60 reptiles in the area. According to IUCN Red List there are 2 critically endangered species (Saola and Chinese-striped box turtle), 5 endangered species, 13 vulnerable species and 8 near-threatened species in the area (details, see Table 3).

Saola is still reported in the area. Villagers of Ban Pa Keun saw 2 individuals in 2009 and 1 in 2010 at the same location “Nam La Peun upstream and Houy heuy”. An addition, a live tiger was seen in the mountain upper Ban Cheng. Tao Kham (Chinese-stripped box turtle) is another critically endangered species of the area, however, it is nearly impossible to find today. This species was offered at a high price (300-400 million kip per turtle) by Vietnamese traders. Other wildlife species in the table 3 are still seen occasionally but high encounters for Red-Shanked Douc Langurs and Black Langurs.

Table 3. List of key wildlife species in Khoun Xe Nongma PPA

No	Local name	Common name	Scientific name	Conservation status
1	ເສົາຫຼາ	Saola	<i>Pseudoryx nghetinhensis</i>	IUCN-CR
2	ເສືອໂຄ່ງ	Tiger	<i>Panthera tigris</i>	IUCN-EN
3	ເຕົ້າຄຳ	Golden Turtle	<i>Cuora trifasciata</i>	IUCN-CR
4	ຟານເຂົາໃຫຍ່?	Large Antlered Muntjac	<i>Muntiacus vuguangensis</i>	IUCN-EN
5	ເມີຍ	Guar	<i>Bos frontalis</i>	IUCN-VU
6	ທະນີແກ້ມຂາວ	White-checked Gibbon	<i>Nomascus siki</i>	IUCN-EN
7	ຂາແດງ	Red-shanked Douc Langur	<i>Pygathrix nemaeus</i>	IUCN-EN
8	ໝີ	Asiatic Black Bear	<i>Ursus thibetanus</i>	IUCN-VU
9	ໝີອຍ	Sun Bear	<i>Ursus malayanus</i>	IUCN-VU
10	ເສືອດາວ	Leopard	<i>Panthera pardus</i>	IUCN-NT
11	ເຍືອງຜາ	Southern Serow	<i>Naemorhedus sumatraensis</i>	
12	ໂຄ່ງ	Black Langur	<i>Trachypithecus eburnus</i>	IUCN-EN
13	ໝາຈອກ	Golden Jackal	<i>Canis aureus</i>	IUCN-VU
14	ໝາໄນ	Dhole	<i>Cuon alpinus</i>	IUCN-VU
15	ເສືອໄຟ	Golden Cat	<i>Catopuma temminckii</i>	IUCN-NT
16	ເສືອລາຍເມກ	Clouded Leopard	<i>Neofelis nebulosa</i>	IUCN-VU
17	ເສືອລາຍຫິນອ່ອນ	Marbled Cat	<i>Pardofelis marmorata</i>	IUCN-DD
18	ລິ້ນ	Pangolin sp.	<i>Manis sp.</i>	IUCN-NT
19	ຄະມິດ	Stump-tailed Macaque	<i>Macaca artoides</i>	IUCN-NT
20	ຟານດົງ?	Annamite Muntjac	<i>Muntiaacus truongsongensis</i>	ART
21	ກະດາງ	Giant squirrel	<i>Rutufa sp.</i>	ART
22	ນົກກົກຄໍຄຳ	Great Hornbill	<i>Buceros bicornis</i>	IUCN-NT
23	ນົກກົກຄໍເອີມ	Wreathed Hornbill	<i>Aceros leucocephalus</i>	IUCN-LC
24	ນົກກົກກ່າ	Rufous-necked Hornbill	<i>Aceros nipalensis</i>	IUCN-NT
25	ນົກໝານ້ອຍ	Brown Hornbill	<i>Anorrhinus tickelli</i>	IUCN-NT
26	ນົກວູ່ວ່າວ	Crested Argus	<i>Rheinardia ocellata</i>	IUCN-VU
27	ນົກກອງກອດ	Grey Peacock Pheasant	<i>Polyplectron bicalcaratum</i>	ART
28	ນົກຂີ້ໂຄ່ງ	Sooty Babbler	<i>Stachyris herberti</i>	IUCN-VU

29	ນົກຂົວຫຼັງຂາວ	Silver Pheasant	<i>Lophura nycthemera</i>	ART
30	ໄກ່ຂົວນົມ	Siamese Fireback	<i>Lophra diardi</i>	IUCN-VU
31	ແຫຼວປາ	Lesser Fishing Eagle	<i>Ichthyophaga humillis</i>	IUCN-VU
32	ນົກກະແຕ້ຫາດ	River Lapwing	<i>Vanilla duvaucelli</i>	ART
33	ປາຟາອອງ	Asiatic Soft-shell Turtle	<i>Amyda cartilaginea</i>	IUCN-VU
34	ປາຟາຫົວກົບ	Malayan Soft-shell Turtle	<i>Dogania subplana</i>	
35	ນາກຕິນເປັດ	Smooth-coated Otter	<i>Lutus sumatrana</i>	IUCN-VU
36	ນາກເລັບສັ້ນ	Small clawed Otter	<i>Aonyx cinerea</i>	IUCN-NT
37	ຮູເຫຼືອມ	Python sp	<i>Reticulated python</i>	IUCN-VU

Remarks: The species listed in international Red List are the species of being endangered and need protection. IUCN CR - Critically Endangered, EN - Endangered, VU – Vulnerable, NT – Near-Threatened and ART – At Risk in Thailand

2.8 Conservation Values and Importance

Khoun Xe Nongma PPA has five conservation values that link to livelihoods of local people. Some species have no livelihood value today but they will in the future if they are protected and used in a sustainable way. Those values are both direct and indirect benefits for local people such as watershed, biodiversity, culture, tourism and research.

▪ Watershed

Khoun Xe Nongma PPA has the catchment of Xe Bangfai River and thus provides water for down stream agriculture, fisheries, livestock raising and local livelihoods for hundreds of thousand people living along the river bank in all seven districts of two provinces Khammouane and Savannakhet Province in central Laos that the river runs through. In addition, Nam Kok which originates from the protected area runs through Vilabouri District of Savannakhet Province.

▪ Biodiversity

Khoun Xe Nongma PPA is outstanding in terms of biodiversity and contains important genetic sources of flora and fauna such as Saola, Chinese-stripped box turtle, Mai Doulai. It is important to protect them from species loss. In addition, there are potentially some endemic species that have not yet been discovered. As a whole there are three main biodiversity categories: forest, wildlife and fish.

Forest : the wet forest and upper dry evergreen forest are considered habitat for Saola. The upper dry evergreen and mixed deciduous forests contain some high value trees. Endemic tree species may be found in limestone forest. The rare and high value trees are Mai Doulai, Mai Ketsana *aquilaria crassna*, Mai Moun *Elaeocarpus sianensis*, Mai Dou *Dipterocarpus macrocarpus*, Mai Tae *Dalbergia conchinchinensis*, Mai Sikhaitoon.

Wildlife : Khoun Xe Nongma PPA is one of Important Bird Area (IBA), with presence of many key wildlife species. The area reported of the importance and threatened wildlife species according to IUCN Red List as 2 critically endangered species (Saola and Chinese-stripped box turtle), 5 endangered species, 13 vulnerable species and 8 near-threatened species according to the categories in IUCN Red List. 4 species of hornbills are found in the area.

Fish : Xe Bangfai, the upper stream and its tributaries are believed to have diverse fish species, however, detailed surveys have not yet been undertaken.

- **Culture**

Villagers living in and adjacent to the protected area are characterized by their living styles, local songs etc which are valuable which could be reserved.

- **Tourism**

Xe Bangfai River provides charming views of nature for sailing, historic carve of ex-leaders (Mr. Nouhak Phoumsavanh) had used during the Indo-China War. As well as local culture, are potential for tourism development activity in the future.

- **Livelihoods**

Over 2,000 local villagers rely on forest resources in the protected area for subsistence and income generation. Major income for households is from non-timber forest products and fishing which they have practiced for generations. Supposed tourism activities will be developed in the future it can provide jobs for local people and they will get more benefits from protection of the protected area.

- **Research**

Due to the Khoun Xe Nongma PPA's high biodiversity of flora and fauna and its critically endangered species such as Saola and Chinese-stripped box turtle that have the potential for scientific research work in the future as to understand their ecology and plan to. These species also have the potential for research related to medicinal plants.

2.9 Important Area for Conservation

In accordance with the current wildlife information obtained from the surveys and village interviews there are two areas of many wildlife species reported, being most important habitat to be protected for wildlife breeding areas named Phou Ngeun and Khoun Xe upstream (see Figure 2). The Phou Ngeun area border the upper Nam Kasap to the west, border with Ban La Ngi to the north, Nam Pati to the east and Nam Tahi to the south. Gaurs, Tigers, Large-antlered Muntjac, Hornbills, Douc Langurs, Gibbons etc are still reported in the area. The Khoun Xe upstream is to the east of Nam Lapeun, covering the whole catchment of Nam Lapeun, Houy Heuy where Saola, Douc Langurs, Tigers, Gibbons, Hornbills, Peacocks etc, are reported.

2.10 Issues and Threats

Threats in the area are by Vietnamese poachers for hunting with snares, collecting turtles, selecting high value trees to cut as well as shifting cultivation by local villagers. Over 15 years that Vietnamese camped along Lao-Vietnam border in the protected area all the year round have made highly disturbed and now no tracks of wild animals can be seen. From the surveys and village interviews it is impossible to find Vietnamese (Vietic) in the forest because they are skillful in hiding in upper limestone/rocks and escaping. Only their traces are observed. In this regard, due to not having enough power villagers suggested that villagers/Kum Ban cannot curb the illegal activities in the protected area.

2.11 Assessment on Trends of Some Key Wildlife Species

Since wildlife ecology and biodiversity have an interdependent relationship, changes in wildlife species populations can be indicate changes in ecosystems in the area. These changes may affect local livelihoods. Because of threats, abundance of some key species is sharply

decreasing. During the planning at village/village cluster, participants brainstormed to see changes in some certain wildlife species villagers considered important. The assessment defined villagers' rationales (basically high price, large animals, rare and good image. The five most important animals they selected were wild elephants, tigers, golden turtles, douc langurs and gibbons. Then, the participants were asked to estimate the population of these species back to 1975, 1985, 2000, 2005 and 2010. The results showed that all these five most important wildlife species decreased dramatically and particularly in 2000. Villagers believed that the population of these wildlife species were continuing to decrease. Therefore, local villagers want to see the population of wildlife species recover, specifically the golden turtle because of its lucrative price. Then, Douc Langurs and Gibbons because they do not generate any adverse impacts on people. For the elephants, it would be impossible to recover them since they left the area in 1985. Only 5 elephants were seen in Nam Lanum prior up to 1985. However, if at all possible the villagers want to see the return of wild elephants to the area. Local villagers seemed to feel more negative about tigers in the protected area because they would kill their livestock. They estimated 3 tigers living in the protected area (see Figure 3).

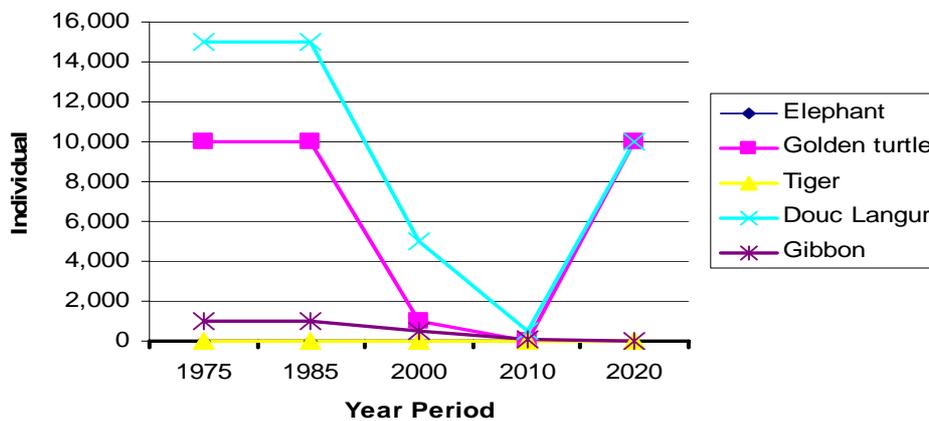


Figure 3. Locals' assessment on the change of key wildlife species in Khoun Xe Nongma PPA

As the local people's attention want to increase wildlife population as well as to protection of abundance of ecosystems in their area including food sources for local villagers on which they are relying. They understood that the said wildlife species above are an indication of biodiversity. Whenever these species remain in the area the forest resources as well as their food sources can continue supplying and functioning well and of course, local villagers can continue living in connection with the forests.

The Wildlife Conservation Society and Khammouane Province analyzed species functions in ecosystems in the area to conclude that there were four flagship species in the area: Saola, Gibbons, Large antlered Muntjac and Otters. They also determined that there are four species that act as representative or indicative species for monitoring: Gibbons, Douc Langur, Barking Deer and Otters.

2.12 Village socio-economic

Socio-economic information can show some data indicating village livelihood status as well as family status. It is also important to examine potential livelihood development and to

support better planning. In addition, the information can act as a baseline data for post assessment after introduction on some development interventions. Table 4 shows the villagers of Khoun Xe Nongma PPA have a high poverty rate because of a low number of village assets.

Table 4. Villages' key socio-economic data

Kum Ban and village	Truck/ car	Tractor	Motor bike	TV	Generator	Rice milt	Cow/ buffalo
Kum Ban Nongma							
1. Ban Nongma							25/15
Nongma	1	8	18	5	5	3	
Ban Kang		3	8	2	1		
Ban Thong		5	8	2	1		
Pak Ark		1	1				
La Ngi			1				
2. La Bouy		5	6	2	3		32/6
Kum Balang							
1. Ban Balang							25/35
Balang		5	7	2	2	4	20/30
Ban Cheng		1					
2. Ban Ba Sieo							
Ba Sieo		3	5	1			
Katou		1	4				71/
3. Ban Khouy Map		4	6	2			20/20
4. Ban Chanon							4/32
Chanon							
Ta Loua							
5. Ban Pa Keun	1	1	4	1			35/0
Kum Houyhet							
1. Ban Houyhet							152/54
Houyhet		25	6	2			30/60
Ban Vat							
Kokfang							
Vangkhou							

Remarks: some sub-villages of Kum Houyhet has no information

2.13 Potential for Livelihood Development

Livelihood development for local villagers is really needed as to reduce their heavily rely on natural resources. The livelihood development focuses on income generation and securing food sources. According to the observations, village interviews and local conditions, the potential for livelihood development for each Kum Ban is as follows:

Kum Nongma, potential for paddy land expansion but unexploded ordnance should be cleared from the agricultural land,; help villagers to find market supply of their cassava in Vietnam; Cassava plantation; and, livestock raising (large animal, pig and poultry) and ensure all animals are vaccinated

Kum Balang, potential for large livestock raising such as cows, and assist in irrigation development and paddy land expansion in Ban Ta Loua. Villagers could also use some trainings in paddy land cultivation and a new rice variety. There are also opportunities for training in ecotourism in Ban Balang for ecotrekking and sailing down to Ban La Bouy.

Kum Houyhet, has sufficient paddy land, but it could be extended. Annual cash crops or short cash crop plantations may be promoted but market supply should be investigated.

All three village clusters (Kum Ban) need to improve infrastructure e.g road access, education and public health. Easy road access to the area could create potential for eco-tourism development. Also, confirmation on Saola in the area can make the Khoun Xe Nongma PPA more outstanding and better attract tourists to the area.

2.14 Projects working in Khoun Xe Nongma villages

Probably because of difficulty of road access there are no foreign projects working in these 3 village clusters of Khun Xe Nongma PPA except for the government project funded school and market in Ban Nongma. There has been no work done to clear UXOs in the area. However, the government plan to expand road access to Kum Nongma and paddy land to Ban Ta Loua through improving an irrigation scheme.

2.15 Management Progress in Khoun Xe Nongma PPA

So far, Khoun Xe Nongma PPA has even no regulations and of course no management in place. The management of forest and wildlife follow the Forestry Law and the Regulations of Wild Animals and Aquatic Resources conservation. However, law enforcement is considered insufficient. At present, 3 staff are assigned to Khoun Xe Nongma PPA, one from the province and other two from the district. Still, no specific office and no appropriate system has been designed for the implementation.

Since 2008, the site has received funding support from Environment Protection Fund (EPF) through Lao Environmental and Social Project (LEnS) and the fieldwork started in 2009 and that made some progress as summarized below.

- 2009, the Government assigned 3 staff, one staff from the province and two from the district responsible for the site management. Staff from the province and the district received some trainings that organized by WCS on some basic conservation principles, protected area planning and preparedness for groundwork.
- 2010, information signboards for indicating the protected area boundaries were constructed at some locations sensitive to entry of trespassers, socio-economic surveys and rapid wildlife surveys for designing the management plan were conducted. In addition, the staff joined a patrol with solders, police and village militias.

Chapter 3. Management Plan

This part presents the site issues, vision and goal of the plan alongside the conceptual model for addressing the issues. Also, the plan defines 3 aims for achievement the goal. Objectives, activities and approaches are borne in each aim above.



3.1 Issues, Vision and Goal

The adverse impacts on Khoun Xe Nongma Provincial Protected Area (PPA) are hunting with snares and timber logging by neighbouring villagers that is a result to decrease the biodiversity in the area within 4 km along the Lao-Vietnam border. For example, no even bird songs are heard along the border and of this stretch. In addition, original forest within and adjacent to the area has been slashed for rice cultivation by local villagers that partly made declined in wildlife habitats. In addition, indirect threats to the area are identified in Figure 5.

In order to reduce the adverse impacts, the capacity of government officials and local team must be enhanced. A patrolling and monitoring system and law enforcement must be established. Zones for conservation and management, and study should be established. Livelihood development activities should be promoted incentives should be given to encourage local villagers to protect and manage. This will also reduce pressure on forest resources. As a whole, there is a need to provide facilities to the action team.

Issue Analysis: Conceptual Model

Both direct and indirect threats (or a combination of both) which may cause the gradual decline in biodiversity need to be identified and understood before they can be addressed. Figure 4 modified from Spense and Somvongsa (2010) shows the conceptual model to address threats to conservation goals.

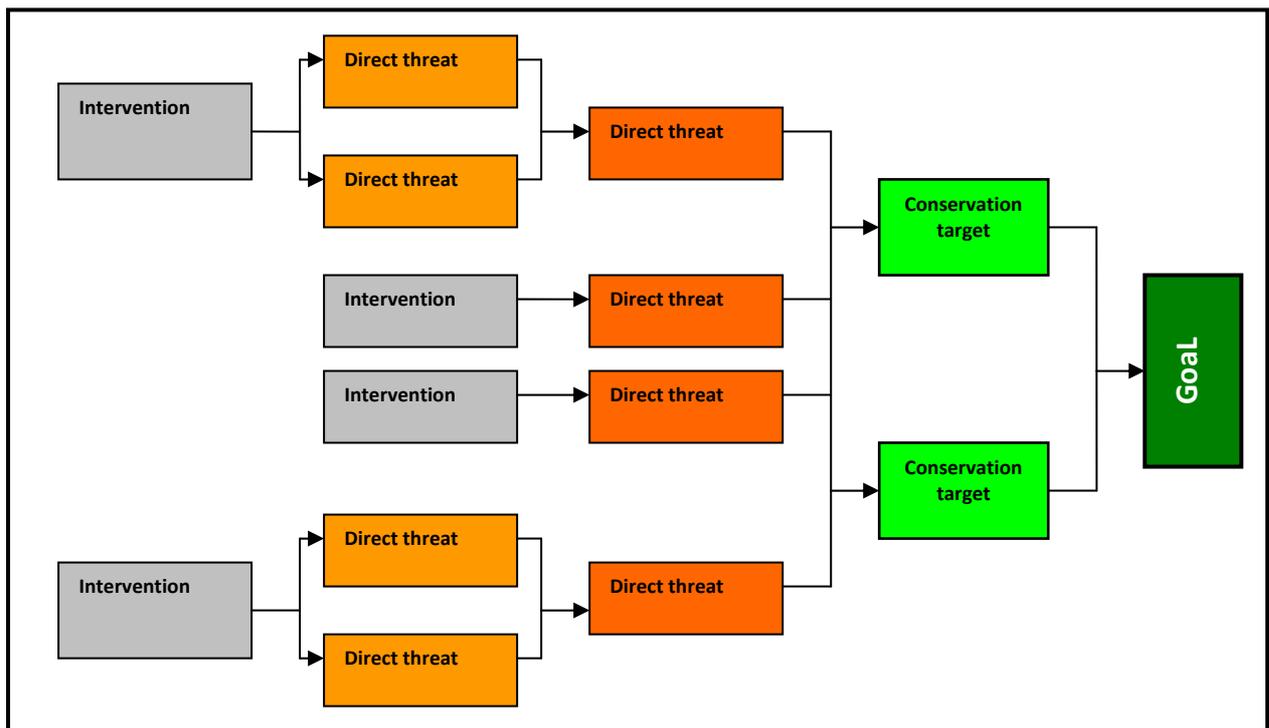


Figure 4. Conceptual model of addressing threats

Intervention	Indirect threat			Direct threat	Conservation target	Goal		
	Why	Who	How	Type				
Develop a management plan	No good working system in place	Vietnamese poachers	Snare	Hunting wildlife and logging for commercial purpose by neighbouring villagers	Increase wildlife population of indicator species by 10% in 2015	Protection the richness of nature – species of flora and fauna, and watershed, to be used in sustained manners		
Conduct land use planning	Villagers unable to prevent the		Chain saw					
Identifying zones	No protected zones & managed							
Conduct awareness raising	Villagers are high illiteracy, lack							
Develop regulations (PAs)	Poor road and market access							
Conduct a patrol	Insufficient staff and budget							
Build khet team and networking of	No offices and PA checkpoints		Villagers				Slash and burn	Hunting wildlife for household consumption by local villagers
Conduct training (various topics)	Local ownership is low						Pursue with dogs	Slash and burn forest for rice cultivation
Build local ownership	PA regulations are not available						Army guns	Logging
Improve road access	Discontinue support by the Gov't	Chain saw		(threats will be decreased by 50% in 2015)				
Improve education and health	No jobs and lack of income sources							
Expand paddy fields where possible	Lack of alternatives for rice							
Improve irrigation systems	Rice product per ha is low							
Increase rice products	Insufficient education and health							
Raise a large animal e.g cow	Insufficient wildlife data/info							
Market study for agri. products	Lack of market info for local							
Promote to plant cassava and corns								
Study for income alternatives								
Provide facilities to the action team								
Conduct more surveys (data gaps)								
Study ecotourism potentials								
Coordinate with other sectors								
Develop sustain. financing								
Implement law enforcement								
Check and control the use of guns								

Figure 5. Conceptual model of addressing threats in Khoun Xe Nongma PPA

Vision: protection and management of the Khoun Xe Nongma PPA through the ownership of local authorities and for the benefit of local villagers.

Rationale: The protected area system of Lao PDR allows local villagers to live in the declared protected areas in hope that the villagers will be ears and eyes for the protection and management of their protected areas since the government has insufficient personnel and budget to manage a large protected area. Providing trainings for villagers/village clusters and facilities for the protected area management will help to build local ownership of protected area management in the future.

Goal: Protection the richness of nature – species of flora and fauna, and watershed, to be used in a sustainable manner.

Rationale: biodiversity, forest and wildlife get pressure from human disturbance especially from the neighboring Vietnamese people which was a result of declining in population of some wildlife species. At the same time, local education capacity is limited and poverty rates are high. Decreases in the population of some key species can long term damage to the general biodiversity of the area. By contrast, if population of an indicator species changes positively, the ecosystem as a whole would have better biodiversity. Biodiversity secures the stability of food sources. To achieving the goal of the management plan, there are 3 sub-goals identified as below:

- (i) Increase in population of key wildlife species and the protection of ecosystems and food sources for local villagers.
- (ii) Decrease the use of forest resources while increasing local participation in protected area management.
- (iii) Government officials and khet teams able to implement the protected area management plan in the future.

3.2 Scope of Policies and Legislations

Policies and principles have been translated and implemented in accordance with the national strategies and laws particularly the National Biodiversity Strategy and Action Plan, Forestry Strategy for the year 2020 and laws on forest, wildlife and environment protection.

3.2.1 Policies Relevant to Protected Areas

- *National Biodiversity Strategy and Action Plan*
The implementation of this strategy is based on the protection of biological diversity which is the key to sustainable poverty reduction.
- *Forestry Strategy for the year 2020*
Lao PDR aims to increase forest cover to 70% of the country by 2020. The implementation of conservation is through the creation and management of the protected areas for protection of natural areas, species of fauna and flora, to ensure the balance of nature, protecting watersheds, natural sceneries, historical and cultural values and for education and scientific research.
- *Socio-economic development*

Implementation of this strategy is based on natural resource potential as a contributor to socio-economic development.

- *National Poverty Reduction Strategy 2004*

Implementation of this strategy is based on both the management of natural resources and social and cultural development.

- *National Eco-tourism Strategy*

The implementation is for sustainable development and poverty reduction through the use of natural resources.

3.2.2 Laws Relevant to Protected Areas Management

- ***Forestry Law (2007)***

- General principles and regulations on the use, management, protection, conservation and rehabilitation of forest resources with the aim of making forest resources a sustainable support to national economic and social development. The law ensures protection and conservation of watersheds, guards against soil erosion, protects plant and wildlife species and the environment.
- the use of forest resources for traditional purposes is allowed such as harvesting non-timber forest products, hunting wildlife, fishing for species not on the prohibition species list and harvest of forest products for household consumption.
- conversion of forest lands for any other purpose is subject to approval by the government. The company or individuals required to pay a forest premium and plant trees for rehabilitating the forest loss. The law considered necessary to establish a forest fund to have secured budget for forest resources and watershed protection.

- ***Law on Wild Animals and Aquatic Resources (2007)***

- General principles for the protection of wildlife and aquatic resources; protection is the responsibility of public society and that require management system, monitor, develop and sustained use.
- The species on the list 1 (protected species) of Lao PDR are banned for hunting and trade anywhere in the country, at any time except for those who receive permits from the government (such as for research purposes).
- The species on list 2 (managed species) shall be managed, monitored, protected and used in a controlled manner. The species on this list are allowed to be hunted in certain numbers based on the regulations for household consumption. They must be hunted outside of a totally protected zone in a protected area.
- The species on the list 3 (generally managed species), can be used according to regulations.

- ***Environmental Protection Law (1999)***

Entities that generate environment impact shall be responsible for the damage. Any development projects including government funded projects should conduct Environmental Impact Assessment (EIA) and design sound environment impact reduction measures prior to the project construction. Also, Environmental management

and monitoring units (EMMUs) must be established at all levels of the government sector.

○ **Water and Water Resource Law**

Promote protection and rehabilitation of water resources and environments. Environmental Impact Assessment (EIA) should be carried out on large development projects and funds must provide for managing and enhancing water resources, catchment, and to pay for any environmental damage that does take place.

○ **Land Law**

Land in Lao PDR is the property of national community. People have the right to use land, but they cannot trade it. . Individuals have to keep land in good condition.

○ **Electricity Law**

Environmental Impact Assessments (EIAs) should be carried out on large hydro-electric dam development projects. These dams must be licensed by the government. The project should contribute to national socio-economic development objectives and there should be no detrimental environmental impacts.

○ **Mining Law 2008**

Mine development should be compatible with environment protection and demonstrate contributions to national socio-economic development and bettering local livelihoods. Protected areas, wildlife sanctuaries and watersheds are off limits to mine development (Article 17, item 3).

3.2.3 Agreements and Orders Relevant to Protected Areas

○ **Strategy of Ministry of Agriculture and Forestry.**

Forest resources should be sustainably used to protect biodiversity, maintain and increase forest cover and to insure the benefits of local villagers.

○ **Agreement of Provincial Governor 2006**

Established Khoun Xe Nongma as a Provincial Protected Area for protection of biodiversity and maintaining Xe Bangfai watershed.

3.2.4 Socio-economic Plan of Bualapha District

There are no specific plan socio-economic development plans for the district available nor are there development plans for each sector to the year 2015. Only a report of the District Agriculture and Forestry Office (DAFO) provides direction to the agriculture sector and explains plans to produce agricultural products for commercial purpose and exporting to Vietnam. Priority needs of the district are to improved basic infrastructure (Table 5).

Table 5. Summary of District’s socio-economic development for the year 2015.

Sector	Kum Nongma	Kum Balang	Kum Houyhet
Agriculture and Forestry	<ul style="list-style-type: none"> - promote planting annual crop especially corns, bean, cassava, for export to Vietnam - promote raising large livestock especially cows, buffaloes and goats. - Plant fruit trees (bananas) - Define areas for forest rehabilitation (60 ha) - Plant rubber tree and 	<ul style="list-style-type: none"> promote raising large livestock especially cows, buffaloes and goats. - Define areas for forest rehabilitation 	<ul style="list-style-type: none"> - promote raising large livestock especially cows, buffaloes and goats. - Define areas for forest rehabilitation (328 ha) Plant rubber trees and eucalyptus

	eucalyptus		
Public Health			
Education			
Transport and communication	Improve road access- Install a telephone network	No plans yet	No plans yet
Tourism			

Remarks: A concrete plan of the district socio-economic plan was not available during the preparation of this management plan. In the PAFO's report to 2020, Kum Balang is included in the Kum Houyhet.

3.3 Programmes and Action

3.3.1 Protection and Management of Natural Resources

Aim 1. Increase population of key wildlife species while protecting the ecosystem and food resources of local people.

Rationale: the richness of an ecosystem can be determined based on the number of different species and population of key species selected as indicators. The key indicator species for Khoun Xe Nongma provincial protected area are gibbons, douc langurs, muntjac, and otters.

3.3.1.1 Identifying Zones and conduct Land Use Planning

Objective 1.1 define areas for forest land use and conservation systematically.

Rationale: due to the lack of zones in place and the protected area management on the ground particularly a totally protected zone and corridor areas has not well implemented which remain a free access. Over use of the forest resources is concerned and that also disturb wildlife habitats.

Action

Act Code	Activity	Responsible agency	Year	Priority
1.1.1	Conduct trainings and land use planning in villages	PPAM, DAFO	1	1
1.1.2	Surveys with local villagers to identifying zones, boundaries of totally protected zones and managed zones	PPAM, DAFO, LUP	1	1
1.1.3	Develop regulations and agreements with local villagers on the implementation of land use planning	PPAM, DAFO, LUP	1	1
1.1.4	Construct information signboards and boundaries	PPAM, DAFO	1	1
1.1.5	Conduct monitoring on the implementation of land use planning and zones for conservation	PPAM, DAFO	2, 3	2

Remarks: DAFO = District Agriculture and Forestry Office, PPAM = Provincial Division of Protected Area Management, LUP = Land Use Planning

Approaches

▪ **Protected Area Boundaries**

The boundaries of Khoun Xe Nongma Provincial Protected Area are defined along rivers and mountains. The distance around the protected area is 142 km. There are 4 boundary directions as below:

- **North:** along the Lao-Vietnam border that stretches from Ban Nongma at (17°16'35" N/ 106°18'10" E) to Ban Ta Loua at (17°17'40" N/ 106°18'10" E).
- **South:** starts from the boundary of between Khoun Xe Nongma PPA and Savannakhet Province's boundary at (17°01'06" N/ 106°25'30" E) to the Lao-Vietnam border.
- **East:** along the Lao-Vietnam border at (17°17'40" N/ 106°18'10" E) to the Savannakhet Province at (17°10'20" N/ 106°25'30" E).
- **West:** starts from the boundary of between Khoun Xe Nongma PPA and Savannakhet Province to Nam Kok at (17°05'35" N/ 106°06'00" E), goes along the Nam Kok and the Road access to Ban Houyhet, crossing to Nam Lanum at (17°16'35" N/ 106°11'30" E) then Ban Nongma at (17°16'35" N/ 106°18'10" E).

The current boundaries of the area have not been marked with concrete posts on the ground. Therefore, it is necessary to complete this work with local villagers specifically in the areas that are highly sensitivity to invasion or are easily accessed by outsiders. The boundary posts would be installed in an open place. Signboards along the boundaries of the PPA are also needed to educate the public about the rules of the PPA.

▪ **Land Use Management Planning**

In practices, village locations, corridors, and buffer zones should be thoroughly described in the protected area regulations, land use planning urgently needs to be completed in the area. Villagers in the protected area have rights to use the forest land following their traditional practices. However, following Forestry Law the land cannot be sold and concessions cannot be given to companies for any use (especially not for planting tree plantations). Expansion to new settlements and conversion of original forests for any development purpose including hill rice cultivation is illegal.

- ❖ The high priority areas for land use planning to be complete are Kum Ban Balang but it needs to allocate sufficient land for cultivation just in case the growth of population in the future land would be shortage. The land allocation for each household for cultivation should allow villagers to rotate their plots following a 5-year cycle (5 plots) in order to have the fallows rehabilitated to some adequate level before they are slashed again. Allocation of cultivation land on a high slope mountain must be avoided because of the high potential for soil erosion to Xe Bangfai River in the long run.
- ❖ **Settlement,** Ban La Ngi and Pak-ark will be relocated to Ban Nongma if enough paddy land is available in this village so that the area can be free from human disturbance. This may allow some key wildlife such as tigers and other large animals to use the area for crossing between Khoun Xe Nongma PPA and Hin Namno NPA. This area is the only area where these two conservation areas are connected by land. The village interviews in Ban Chanon indicated that villagers want to relocate their villages to join Ban Ta Loua in the event that there is more paddy land available up there. If this is the case, this will provide more free land between Ban Cheng and Ban Ta Loua. Once rehabilitated, the land can act as a corridor area wildlife crossing between the two protected areas (Phou Ngeun and Khoun Xe Upstream).

- **Zoning**

Various zones are defined to ensuring the protection and management of key species and the integrity of ecosystem.

- ❖ **Conservation Zone**

The zones defined for conservation aim to protect biodiversity especially of key species. Some zones for the conservation purpose and that apart from the totally protected zones villagers can enter and collect forest resources according to the PA regulations and the objectives of those zones established which the detailed policies and principles as below:

- **Totally Protected Zone**

This zone is determined by the area with high levels of biodiversity, especially those with a presence of key species. The zone establishment functions as wildlife sanctuary. There are two totally protected zones (TPZ) in the Khoun Xe Nongma PPA as Phou Ngeun (3,000 ha) and Khoun Xe Upstream (12,000 ha) (Figure 2).

The Phou Ngeun TPZ's eastern boundary in Nongma area starts from Houy Kasap upstream at 17°12'05"N/ 106°15'58"E of Nam Lanum area to Ban La Ngi and then crosses the Lao-Vietnam border. The boundary of this TPZ on the east running parallel the Lao-Vietnam boundary but with 2 km away from the boundary. Houy Pati and Nam Luang are included in this zone. Houy Tahi located at 17°10'15"N/ 106°14'52"E is the southern boundary of this zone.

The Khoun Xe Upstream TPZ, located to the east of Nam Lapeun River which is the boundary that starts from Phou Khouan to the south-west (headwaters of Nam Lapeun) and flows into Xe Bangfai River to the north. The boundary, then goes up and along the Xe Bangfai about 3 km from the mouth of Nam Lapeun before running along a small stream heading to the east (Lao-Vietnam border). The eastern boundary is about 2 km away from the Lao-Vietnam border and runs parallel to it until reaching the border with Savannakhet Province.

People are not allowed to enter these zones all year round except for patrolling and monitoring activities. These zones are a collective area which villagers have the right to protect, without owning the land or using forest products for any purpose. Villagers can access the area along the Lao-Vietnam border because the zones do not reach the border. The rationale of this design is that local villagers can investigate threats which could occur along the Lao-Vietnam border.

- **Corridor**

A corridor is important for wildlife ecosystem since it allows wildlife to cross between PAs. The corridors of Khoun Xe Nongma PPA are at Phou La Yek which width-wise starts at Ban Beng and goes to Phou La Yek. Forests in the corridor between Khoun Xe Nongma PPA, Phou Luang Protection Forest and Hin Namno NPA should be connected. Surveys and plans for rehabilitating the length of the from Ban Cheng to Khouy Map and then to Ban Beng are needed.

- **Rehabilitation Area**

Un-to-now, forest land in the protected area has not yet been allocated and this probably results to conversion of some forest land for rice cultivation. Therefore, land use planning and management is needed in the protected area. The area that needs to be rehabilitated naturally overlaps with the corridor areas which were mentioned above. In addition, there is a need to rehabilitate the forest areas in Ban Chanon, Ban Palang, Ban Khouymap and along the along road access to Ban Pa Sieo and the area between Ban Chanon and Ban Ta Loua.

- **Buffer Zone**

The buffer zone should be defined about 1 km apart from the real boundaries of the protected area except the area is surrounded by a limestone escarpment (which it can protect itself from encroachment). Instead of marking the real boundaries of the PA, markers can be put some distance away from the boundaries in order to better protect the forest from encroachment.

- ❖ **Managed Zone**

The managed zone is the area apart from the totally protected zones which villagers are able to use for forest resources as long as following the PA regulations. Hunting the protected wildlife species (on the list 1 of Laos) that including douc langurs and black langurs anywhere is against the PA regulations as well as the Lao PDR's Law on wildlife and Aquatic Resources. Nevertheless, the managed species can be hunted in certain numbers. If any species has high populations e.g southern serow villagers can hunt them based on a quota given annually per village.

- ❖ **Threat zone**

The area receives the most pressure is along the Lao-Vietnam border where illegal logging and hunting for commercial purpose have been reported. Poachers have intruded deep to reach to Phou Ngeun and Khoun Xe Upstream. These two areas are defined in this management plan as a totally protected area. Thus, it is necessary to regularly conduct patrols.

- ❖ **Entry Checkpoint**

Although, outside villagers entering the area for hunting and purchasing wildlife products is not a big issue at present, it could be in the future when road access is improved. The sensitive areas to be carefully checked including at Ban Cheng and Pa Sieo of Ba Lang cluster, Ban La Ngi of Nongma cluster and Ban Vat of Houy het cluster. These village points should have forest guard posts and assign involved villages to be responsible for checking in and out trespassers, especially in dry season. With support from government officers the khet team and perspective villages will be responsible for staffing the posts.

- **The Use of Forest Resources**

Forest resources, pieces of land, forest, timbers, wildlife and fish, are the property of national community which villagers have the rights to use based on regulations. They must be used in a sustainable manner.

- ❖ **Forest**

Villagers can use timber from the village production forest for house construction and other purposes. The villages in the protected area have to complete a land use planning programme to designate a clear and appropriate proportion of village production forest. In case the need for timbers in the PA exceeds what is available in the designated area, the villages should obtain an approval from appropriate authorities.

- ❖ **Wildlife**

The use of wildlife should follow the PA regulations for protected and managed species. The key and rare species such as Chinese three-striped Box Turtle, Saola, Tigers, Gibbons, Large-antlered Muntjac must be the most protected. After dissemination of the PA regulations, enforcement will be serious. Hunting for household consumption and for not protected species such as southern serow or deer is allowed in a specified number. Species with a large population can be hunted outside the TPZ during the non-breeding season. Hunting wildlife for sale is illegal.

❖ **NTFPs**

Villagers have for the right to collect forest products in the managed zones for sale and household consumption. However, traders who purchase any forest products for commercial purpose should have permit. In addition, the supply of raw materials from the forest needs to be evaluated. The harvesting should comply with sustainable use practices (harvest technique). Collecting rare species is not allowed and that use roots unless a sustainable harvesting method is introduced.

❖ **Fish**

Fish is quite abundant in Xe Bangfai, Nam Lanum, Nam Lapeun and Nam Kok. Villagers can harvest fish for household consumption or sale. Fishing gears such as explosive, electro fishing, poison and even fishing spears with dingles are not allowed. Fish conservation zones for fish sanctuaries should be established in each village where there is potential all year round.

3.3.1.2 Awareness Raising

Objective 1.2 increase awareness raising for local authorities and villagers on conservation.

Rationale: local villagers and local authorities do not clearly understand the importance of conservation and its links to their sustainable livelihood development. Meanwhile, dissemination on laws and regulations is insufficient.

Action

Act Code	Activity	Responsible agency	Year	Priority
1.2.1	Design, develop and produce education and awareness raising materials	PPAM, NF, LWU, DAFO	1	1
1.2.2	Conduct awareness raising activity in each village	PPAM, NF, DAFO, LWU, KB, KT	1	1
1.2.3	Train village chiefs and heads of Kum Ban on conducting awareness raising activity how to educate target group	PPAM, NF, DAFO, LWU, KT	2	2
1.2.4	Follow up the awareness raising activities and educate target group	PPAM, DAFO, LWU, NF	2, 3, 4	2

Remarks: DAFO = District Agriculture and Forestry Office, PPAM = Provincial Division for Protected Areas Management, LWU = Lao Women’s Union, NF = National Front, KB = Kum Ban, KT = Khet Team

Approaches

The success of awareness raising activities is not only communicating conservation messages to the target group, but also making the messages clear and persuasive so that the group will take ownership over conservation. The target group should take some initiative in conservation activities in the future. To make this happen, we need to clearly understand the target groups. We must also understand the local conditions. So far, there has never been any awareness raising activities conducted in the area. For this reason, villagers do not understand the importance of conservation and the conservation needs for forests, wildlife, aquatic resources etc. Therefore, the objectives of the awareness raising program for villagers is for the target groups to perceive the important role that conservation plays in their livelihoods, the changes

(and sometimes depletion of natural resources), causes of the changes, approaches for addressing they changes and how to use resources sustainably. The target groups should also be taught the needs for protected area management, the management approach, laws and regulations, and definitions of totally protected zones, protected species and managed species (which villagers can hunt for household consumption but not for sale).

❖ **Target group**

Information collected indicates that the major impacts in the area are not caused by Lao people from either inside or outside of the area. It is neighboring Vietnamese villagers who cross the international border. To stop the Vietnamese’s activities, enforcement only (not awareness raising) must be used. The villagers in the area have used shifting cultivation. This is an important topic of awareness raising - they can be taught how to use this practice in a sustainable way, and perhaps change to a new technique. Conducting the awareness raising activity for local villagers is important for gaining their cooperation in protecting their protected area. Thus, the awareness raising is for villagers, target groups (poachers) and students.

❖ **Awareness raising materials**

Awareness raising materials must be tailored to each specific target group. Local conditions and the level of village education in receiving the messages must be taken into account. This works should be conducted separately for 3 target groups (villagers, poachers and students).

Target 1. Villagers, to take understanding the issues, principles and the needs of conservation.

Topic	Tools and Methods
1	Use a puppet of douc langur to demonstrate and attract audiences, use the post “good forest, good life” that shows the forest function and disasters of forest destruction.
2	Need to identify an indicator for tracking changes in biodiversity every 5 or 10 years so as to understand the past, present and future trends e.g population of gibbons, unit effort of fish harvest per day, distance traveled from village to get non-timber forests.
3	Use a puppet of douc langurs to demonstrate how to wisely use of forest resources, use the map of the area, sketch maps on the concept of fish conservation zones, totally protected zones and corridors that can increase fish or wildlife populations.
4	Providing some examples of future benefits from protected area management, the loss from no management in place, this links to item 3.2
5	Use a puppet of douc langurs to demonstrate clearly where the totally protected zones of the area are, which species are banned to hunters (on the list of protected species) and rationales.
6	Benefits of ownership, protection and the area, rights of responsibility, decision-making and use of forest resources.

Target 2. Poachers, who disobey the regulations (do shifting cultivation in original forest, hunting and involve in wildlife trade)

Dissemination of protected area regulations, laws relevant to protected area

management, forests and wildlife conservation. The village should be careful to fully conduct awareness raising activities and disseminate the regulations in Ban Pa Keun because this village is considered a professional hunting village in the area.

Target 3. Students, (teachers)

Awareness raising materials to support school teachers and booklets should be designed and produced in addition to a local curriculum and school activities.

❖ **Delivery the awareness raising activity**

For general villagers, outreach activities for who are illiterate and have limited Lao speaking abilities need to be communicated using mainly visual techniques or drama. These dramas should be acted out in the local language. Therefore, we have to conduct this work following 3 steps below:

Step 1. Conduct outreach activities publicly in each village on the importance and the need of conservation and disseminate regulations. Use a puppet of douc langurs and black langurs to demonstrate. The campaign team should be trained on how to conduct the outreach activities prior to the trip to the villages. Messages, story of drama and words used should be tailored to fit the target audiences. The people who perform the drama should be able to speak a local language. An officer who is not wearing a puppet should raise discussion questions about the puppet performance for the audience to discuss. In this regard, the modified method for Khoun Xe Nongma PPA differs from the one designed for villagers of Hin Namno NPA.

Step 2. Provide trainings for leaders and khet team to understand conservation terminology and methods of awareness raising activities so that they can better explain to the villagers afterward. The training event should be held at Nam Chala and last at least 3 days. The trainings ensure that the participants be able to obtain a deep understanding of various topics. Their knowledge will be assessed after the training. It should be noted that written evaluations will not be used since some villagers are illiterate. The participants would have capability of correct communication with their villagers. Unclear messages should be translated into local languages. To add value to the trainings, the leaders working in the district to whom the villagers respect should be invited to be a chair of the trainings.

Some study tours for khet leaders, village councils and khet teams on appropriate topics should be arranged in the future.

Step 3. Working with target group (disobeyers) to identify their issues and find way to address their issues together. Kum Ban will continue educate specifically the target groups.

Students: integrating some lessons on conservation into a local curriculum system can gain indirect benefits when students' parents receive the messages from their children. This obviously also impacts the students themselves over the long-term. Activities will include student competition events, camping and joining some social activities but this awareness raising activity is not ready for the students in Khoun Xe Nongma PPA due to only a few number of students today.

Responsible agency: this work will be conducted by the Provincial Division of Protected Area Management (PPAM), District Agriculture and Forestry (DAFO), Lao Women's Union, National Front, Kum Ban leaders/Khet elders and khet team.

3.3.1.3 Patrolling and Monitoring

Objective 1.3 Enhance patrolling and monitoring systematically and regularly

Rationale: So far, a patrolling and monitoring system has not been applied in the area. The previous patrols conducted by village militia are intermittent and it is impossible to completely prevent the neighboring villagers (Vietnamese encroachers) from illegal poaching.

Action

Act Code	Activity	Responsible agency	Year	Priority
1.3.1	Establish khet ranger teams	PPAM, DAFO, KB	1	1
1.3.2	Identify and agree on the areas of responsibility for management and patrolling	PPAM, DAFO, AO, PO, KB	1	1
1.3.3	Mark patrol and monitoring routes	PPAM, DAFO, KB KT, EXP	1	2
1.3.4	Conduct training on patrolling and tactics to deal with Vietnamese poachers	PPAM, DAFO, AO, PO, KT	1, 2	1
1.3.5	Conduct trainings on monitoring for staff and khet team (using Occupancy method)	PPAM, DAFO, KT, EXP	1, 2	1
1.3.6	Conduct a patrol	PPAM, DAFO, AO, PO, KT	ongoing	1
1.3.7	Conduct a monitoring (using Occupancy method)	PPAM, DAFO, KT,	ongoing	1
1.3.8	Khet team will improve their Lao writing skills (adult education)	EDU, PPAM,	ongoing	2

Remarks: DAFO = District Agriculture and Forestry Office, PPAM = Provincial Division for Protected Area Management, Army Office, Police Office, KB = Kum Ban, KT = Khet Team, EXP = Expert

Approaches

❖ Patrolling and monitoring

There are some differences between patrolling and monitoring activities. Patrolling is doing surveys to understand and prevent threats from encroachers. Patrolling can be conducted on both a regular basis and *ad hoc*. The patrolling routes do not necessary need to be the same every time. The patrol teams should be carry guns to protect themselves when arresting poachers.

Monitoring means to monitor changes in biodiversity and the level of threats by creating a database. The same routes should be used each time for monitoring. A team of 3-4 people should walk slowly and quietly along the designed monitoring routes. Otherwise, the teams would not be able to detect wild animals and data collected could not be used for comparing changes accurately. Most importantly, participants banned from hunting wildlife while on patrolling and monitoring missions.

❖ Patrolling and monitoring team

Patrol has 2 levels: large scale and small scale patrols. The small scale can be a regular and irregular. The large scale patrol is conducted throughout the protected area and participants include staff, khet ranger team, army, police and village militia (a team of 10-15 people per

time). The small scale patrol will be responsible for their own areas of responsibility in their individual village cluster and only the khet ranger team and village militia (a team of about 6 people per time) participate.

Khet ranger teams of Khoun Xe Nongma PPA consist of 3 teams as below:

Khet ranger team 1. Nongma (responsible for Northern Phou Ngeung, the Ban La Ngi area to Nam Lanum headwater, and the area close to Nongma checkpoints).

Khet ranger team 2. Ban Balang (responsible for Southern Phou Ngeun, Houy Pati, Northern and eastern Khoun Xe Upstream).

Khet ranger team 3. Houyhet, (responsible for Southern Khoun Xe Upstream, Phou Khouane, the area along the border with Savannakhet. Detailed patrol area and patrol routes will be designed for these 3 areas.

The monitoring team will be led by staff and the Khet ranger teams and village militia will participate. Sometimes, monitoring will be conducted by Khet ranger teams and village militia if they are well trained and are highly capable of monitoring. The monitoring will be conducted once a year in January.

❖ **Patrolling**

Patrolling can be regular and irregular. The regular patrolling can be conducted twice a month for each village cluster (but patrol effort would decline to once a month when threats are better controlled). The irregular patrolling depends on the intelligence or village reports. The area of focus is along Lao-Vietnam border, Khoun Xe Upstream, Houy Pati, Nam Luang and Phou Nguen. The regular patrol will take about 3-5 days.

The large and small (khet) patrols should have some good tactics for finding and arresting Vietnamese poachers. The team should be on the lookout for poachers and carry a sling shot. The team should surround the poachers with their sling shots to trap them. Village militia have effectively used this technique to stop Vietnamese poachers from running away in the past. The large scale patrol will take at least 1 week.

❖ **Monitoring**

The monitoring area is identified in 2 areas in the Khoun Xe Nongma including Houy Lapeun and Phou Ngeun as totally protected zones. For biodiversity monitoring at Houy Lapeun the access route is also from Ban Pakeun and that the routes go along the Nam Lapeun upstream to Houy Hieu, continues along this stream then crosses to Xe Bangfai until Ban Ta Loui. It would take about 3 days. For biodiversity monitoring at Phou Ngeun the route should start from the old survey trail at Nam Kasap – the Nam Lanum area heading to Phou Ngeun, to Houy Pati then Ban Chanon. The survey routes should be defined and marked properly (using the Occupancy method), and the same routes must be followed at the same time of the year. A specialist must design the route and procedure for the team to follow in all of these patrols. A monitoring route must be designed to monitor otter populations along rivers as this species is considered an important indicator of aquatic biodiversity.

Some needed equipments for patrolling and monitoring and schedules are show in table 6 and 7.

Table 6. Field equipments

Equipment	Remarks
GPS, and spare batteries, such as Alkali or Panasonic to be used	Garman <i>E-trex</i> : High sensitivity
Digital Camera	

Video camera	(if budget available)
Maps and compasses	Map 1 : 100,000 with lamination
Hammock, sleeping bag	Small and handy
Plastic sheet	During wet season
Torch	
Sling shot	For patrolling
Notebooks and forms	

Table 7. Time table for patrolling and monitoring

Activities	Frequency	Places	Month
patrols along the border	Twice/year	Along the border	Mar and Oct
Regular patrol	Twice/month	Assigned area	
Irregular patrol		Assigned area	Depends on reports
Monitoring	Once a year	Target areas	January

3.3.1.4 Law Enforcement

Objective 1.4 Improve effectiveness in law enforcement

Rationale: law enforcement in protected areas is not strong which provide gaps for illegal harvests of forest resources by Vietnamese poachers.

Action

Act Code	Activity	Responsible agency	Year	Priority
1.4.1	Draft regulations of protected areas for consultations with villages and village clusters (Kum Ban)	PPAM, KB, DAFO	1	1
1.4.2	Establish a network of informants at village and khet. Logbooks will be provided for villages and Kum Ban to record any events.	PPAM, KB, DAFO	1	1
1.4.3	Define policies and regulations with villagers to ensure a sustainable use of forest resources (fish conservation zones, forest product harvests)	PPAM, DAFO, KB	1	2
1.4.4	Improve and seek regulations approval, then disseminate regulations in villages and Kum Ban	PAFO, PPAM, DAFO, KB	1	2
1.4.5	Implement the regulations as they apply to both Lao people and Vietnamese poachers	PPAM, DAFO, AO, PO, KT	ongoing	2

Remarks: DAFO = District Agriculture and Forestry Office, PPAM = Provincial Division for Protected Area Management, Army Office, Police Office, KB = Kum Ban, KT = Khet Team

Approaches

- **Law enforcement**

Law enforcement for offenders will be the responsibility of local authorities in the district and khet/Kum Ban, in collaboration with the forestry inspection unit at the khet and the district levels in the concerned sites (if any). However, the measures taken have to take into

consideration ethnic groups, the very poor and first time offenders. Minor issues should be addressed at the khet/Kum Ban level to minimize long procedures. At the same time, to make the process simpler, fine rates must be set for every species of wild animals and rights must be given to every level, especially authorized persons, who will make decisions in addressing cases with an amount of less than 1 million kip.

Responses to events/infringements must be strict and regularly updated, with village militias and village forest units committed to investigate information received, and ready to arrest and send offenders to the Kum Ban concerned. The Conflict Resolution Committee (ConRoC) at the khet level must be established for prosecuting, reconciling and ensuring that income derived from the fines is properly allocated for the protected area.

▪ **Regulations development**

In order to implement the law enforcement effectively requires development of regulations for Khoun Xe Nongma PPA specifically. The regulations ensure the protection of biodiversity, wildlife and aquatic animals, rare and high value trees and designate totally protected zones and managed zones to be used in a sustainable manner. The regulations should be developed through consultations with villagers in and adjacent to the area. The regulations will be drafted for submission to the key stakeholders for comments and are subject to approval of the Provincial Agriculture and Forestry Office (PAFO). Importantly, because the area has a high poverty rate, ethnic groups which lack education and low level of awareness on conservation, therefore, set of penalty/fine standard for inside and outside, rich and poor infringers should be distinct and be clearly defined. The regulations can be drafted by reviewing and learning from other national protected areas such as Hin Namno NPA or Nakai-Nam Theun NPA. The regulations contain the key elements listed below:

- ❖ Settlement - a new settlement is not allowed but relocating villages to an area where suitable agricultural land is available and based on the management arrangement may be necessary so as to leave some forest land to regenerate allowing wildlife to cross between areas.
- ❖ Boundary - defined at least 1 km apart from the protected area boundary where it is illegal to clear forest for any purpose.
- ❖ Corridor - not allow to convert forests anymore, it needs to keep and leave forest regenerated themselves naturally.
- ❖ Totally protected zone – people are not allowed to enter the area at any time of year except for patrolling and monitoring which must be approved by the appropriate authority.
- ❖ Managed zone - besides the totally protected zones, villagers are allowed to use forest products according to their traditional practices and protected area regulations.
- ❖ Forest land use - allows villagers in the managed zone to use the amount of forest land needed to meet their subsistence needs. Conversion of forest land for planting industrial trees on a large scale is not allowed.
- ❖ Logging or mining - any activity that generate adverse impacts on the protected area and water sources as well as on local communities is not allowed.
- ❖ Forest resource use - the use of forests, wildlife and aquatic animals for household consumption and in a sustainable way that follows the regulations of Khoun Xe Nongma protected area is allowed.
- ❖ Large livestock raising - raising cows is encouraged but buffalos are only encouraged if they do not enter far into the totally protected zones.

- ❖ Wildlife hunting - the protected wildlife species is illegal according the Lao PDR's Law on wildlife and Aquatic Resources at any time and in any place. Nevertheless, the managed species can be hunted in a certain number for household consumption. A fine rate should be set for each protected species in order to ease for the law enforcement
- ❖ Wildlife trade - according to the Wildlife and Aquatic Law any wildlife listed in the 3 species categories is illegal to trade.
- ❖ Law enforcement - need to define appropriate criteria for penalty/punishment for outside/inside, rich/poor villagers who are infringers the regulations. Accompanying and aiding outsiders in hunting or logging in the protected area is also illegal.
- ❖ Planting - encourage to plant cash crops and industrial trees in agricultural land, at a household scale but prevention from encroachment into the protected area.
- ❖ Livelihood development - focus on food security, income generation and providing job skills including education and health service. Development activities should not impact the ecosystems in the project areas. Bringing non-native animals or crops to breed in the area should be avoided because they may become invasive species that cannot be controlled.
- ❖ Infrastructure development - any development projects proposed in the protected area that might generate adverse impacts on the area such as road construction by heavy machines, transmission lines must consult the Provincial Division of Protected Area Management. Upgrading/constructing new roads shall follow the existing old routes, while mining is not allowed at all in the protected area.

- **The Network of Protected Area Coordination**

The network of coordination is a coordination system bringing together different actors with the same objective. It is very important for the effective co-management of the protected area. It implies that each level involved in the management of the protected area should have a part in the coordination network, systems, and approach. One or two people should be nominated as focal point and their contact details should be given. The coordination can be formal (written) and informal (by phone, oral reports, discussions). Reporting timelines and modes should be agreed to jointly by the involved sectors and focal points.

- ❖ **Village network**

Village forest guards and village informants/network will be selected in each village and are in charge of collecting information about Khoun Xe Nongma PPA. It is especially important that they collect information about those breaking the protected area regulations such as logging, hunting protected species, over-harvesting of NTFPs in the protected area and entering the totally protected zones. If any clues are received, detailed investigation is required. In the case of observed infringements, occurrences should be reported immediately to the village head or khet/Kum Ban. Any unusual observation in the khet area should be also reported, such as traders purchasing NTFPs, timber and wild animals without permits. Therefore, the responsible person should keep records of incidents and then report to the Khet, particularly regarding any events that could generate negative impacts for the forest in general and the protected area, in particular.

- ❖ **Khet network**

The khet team is responsible for collecting information and receiving village reports concerning illegal activities in the protected area regulations such as logging, hunting wild

animals in the protected area for commercial purposes, and entering the totally protected zones. Any information given by informants shall be investigated, and if it is serious, the khet team will be deployed to the target location. The sub-station offices should organize a monthly and quarterly meeting specifically for the discussion and sharing of information concerning the forest in general and the protected area, in particular. One sub-station office will be responsible for one or two village clusters relevant to that sub-station.

3.3.1.5 Surveys for Protected Area Management

Objective 1.5 Information of rare species and other needed info for management should be available.

Rationale: Wildlife information is vital for management planning especially information regarding rare/endangered species so as to obtain a better understanding of their status for effectively planning species conservation.

Action

Act Code	Activity	Responsible agency	Year	Priority
1.5.1	Conduct Saola surveys (to certify if Saola still exists in the area from field surveys and also to understand its habitat)	PPAM, DAFO, EXP	1, 2, 3	1
1.5.2	Conduct bird surveys	PPAM, DAFO, EXP	2	2
1.5.3	Conduct Aquatic surveys (fish)	PPAM, DAFO, EXP	2-5	3
1.5.4	Conduct surveys on other wildlife species	PPAM, DAFO, EXP	2-5	3

Remarks: DAFO = District Agriculture and Forestry Office, PPAM = Provincial Division for Protected Area Management, EXP = Expert

Approaches

- **Surveys for Protected Area Management**

Various topics of protected area work in Khou Xe Nongma PPA require detailed surveys and some species such as Saola and Golden Turtle should be studied and research should be done on how repopulate them in the area. Surveys for understanding the diversity of birds and fish are needed in the future. Perhaps, a study is needed on a sustainable use planning of non-timber forest products and fish (fish conservation zone). Any researchers interested in conducting researches in the area, but lacking financial backing should write a proposal that indicates the objectives, methodology, expected outputs and budget of their project. Assistants to the projects should be trained in the concerned fields, and any surveys should be done with the cooperation of local villagers. After a survey, the outputs or reports, photos shall be sent to the Khammouane Provincial Division of Protected Area Management.

3.3.1.6 Roles, Coordination and Cooperation

Objective 1.6 Enhance coordination and cooperation skills

Rationale: Coordination and cooperation with sectors is insufficient and the roles of relevant sectors for protected area management are not clear. In addition, there is no plan for enhancing cooperation with adjacent protected areas. Cooperation with the Vietnamese Government on curbing Vietnamese poachers is particularly important.

Action

Act Code	Activity	Responsible agency	Year	Priority
1.6.1	Establish a Protected Area Management Board	PPAM, DAFO,	1	1
1.6.2	Hold a stakeholder workshop with various sectors in the district to seek consensus on sectors' roles	PPAM, PAFO, DAFO,	Ongoing	2
1.6.3	Hold a meeting and exchange workshop with sectors, particularly with Vietnam	PPAM, PAFO, DAFO, KB, PGO	Ongoing	1
1.6.4	Make agreements with Vietnam to address Vietnamese poachers crossing the border	PPAM, PAFO, DAFO, KB, PGO	1	1

Remarks: DAFO = District Agriculture and Forestry Office, PAFO = Provincial Agriculture and Forestry Office, PPAM = Provincial Division for Protected Area Management, KB = Kum Ban, PGO = Provincial Governor's Office

Approaches

▪ Roles and Duties of Stakeholders

The role, duties and responsibilities mentioned below concern only technical issues and relate to supporting the management of Khoun Xe Nongma PPA. This plan provides a general framework for the management of the protected area. Based on needs for implementation of the management plan, some main activities have also been formulated.

❖ Village level: Forest Guards

Actively assist in the implementation of the Khoun Xe Nongma PPA management plan by assuring that the forest resources are utilized according to the village regulations as well as national laws and the protected area regulations.

Participate in the monitoring, patrol, survey and reporting of all issues to the Kum Ban or Khet (the Khet or the sub-station office) in a timely manner. Duties will be carried out under the leadership of the village heads, and if the village capacity is enhanced sufficiently, forest guards and village militia will jointly implement the monitoring with khet ranger teams. Also, they will take part in activities including awareness raising and conflict resolution where appropriate.

❖ Khet/Kum Ban level: Sub-station Office

At the Khet/Kum Ban level, the deputy head of the Kum Ban is responsible and gives advice on protected area management activities within their areas of responsibility so as to ensure the management plan is implemented properly. At this level, Khet ranger teams will be established to work with the sub-station offices of the PA ensuring that the forest resources are used in accordance with village's and protected area regulations.

The khet ranger team will be formed by selecting the most active, motivated and responsible village guards and village militia. The khet ranger team will be trained and considered local staff of Khoun Xe Nongma PPA. Monitoring and patrol activities should be conducted in cooperation with the village militia in that area. In regards to technical issues, khet rangers should work closely with the village guards and the sub-station offices of the PA. At the khet level, the khet chief has the authority to fine offenders. Under the supervision of the head of the Kum Ban, the teams responsible for checking the handling of firearms, such as in the hunting of wildlife, and those that disobey the regulations shall have their firearms confiscated.

The khet will maintain communication with villages and conduct monitoring on a monthly basis (as necessary) in order to help in the resolution of conflicts over resource use. They will participate in monthly or quarterly khet meetings to report on regulation implementation and issues happening within the khet and villages related to Khoun Xe Nongma protected area management.

With regards to technical matters, the khet ranger team reports to the both the district and the PA field office, while the administration and development issues will be reported to the Khet/Kum Ban level.

❖ **District level: Coordination Office**

Under the supervision of the District Agriculture and Forestry Office (DAFO) of Bualapha of which some staff are assigned for Khoun Xe Nongma PPA and the Provincial Division for Protected Areas Management, the designated staff will carry out planning and joint work and reporting to both the vertical and horizontal line managers. If necessary the district coordinator for the PPA is to work with Nam Chala Sub-Station Office directly and join in visiting villages on a monthly basis or at least once a quarter.

Other sectors also have a responsibility to support the management of the PA according to their mandates. For instance, the military and police sectors are involved in the patrolling and arresting those who break the national protected area regulations. The Kum Ban and District Reconciliation Unit should pay attention to the work of the protected area management and ensure fair benefit sharing according to the relevant agreements. Lao Women's Union and National Front Office, Education Office and Public Health Office will be key partners for and participate in livelihood development as well as conservation awareness raising in Khoun Xe Nongma PPA. In addition, Public Works and Transportation Office, Tourism Office and Commerce Office should support this work.

❖ **Provincial level: Provincial Division for Protected Areas Management**

PPAM implement its mandate under the supervision of the Provincial Agriculture and Forestry Office (PAFO) typically on the formulation the Party's policies, and oversees technical issues, planning, coordination, and preparing funding proposals. Particular staff are responsible for inspection, quality control, ensuring the preparation and submission of progress reports for donor funded projects. The staff also facilitate the implementation of the projects and the general activities of Khoun Xe Nongma PPA management.

3.3.2 Livelihood Development

Aim 2. Decrease the use of forest resources while better local participation in protected area management.

Rationale: local villagers rely mainly on forest resources and do hill rice cultivation because suitable paddy land is limited. Due to lack of livelihood alternatives and incentives for conservation, it is difficult for local communities to fully participate in the protection of protected areas.

3.3.2.1 Feasibility study for potential livelihood development

Objective 2.1 Information on potential options for livelihood development available.

Rationale: detailed information on potential for livelihood development in each sector is limited and risks for project failures are not assessed. The study to assesses the livelihood development activities that are being proposed in this management plan.

Action

Act Code	Activity	Responsible agency	Year	Priority
2.1.1	Design and prepare materials for undertaking study on feasibility of livelihood development activities	EXP, PPAM	1	1
2.1.2	Training and conduct feasibility for potential livelihood development of local villagers	EXP, DAFO, PPAM	1	1
2.1.3	Conduct detailed socio-economic surveys, and feasibility for potential livelihood development of local villagers	EXP, DAFO, PPAM	1	1
2.2.4	Analyze and provide recommendations on each of those livelihood development activities.	EXP, PPAM	1	1

Remarks: DAFO = District Agriculture and Forestry Office, PAFO = Provincial Agriculture and Forestry Office

Approaches

- **Feasibility study for potential livelihood development**

For securing the sustainable livelihood development activities and planning for prevention of project failures, there a feasibility study is needed to assess the activities' potential, limitations and risks.. The study includes collecting detailed socio-economic information, analyzing and providing recommendations for addressing the livelihood development issues correctly and taking into account both conservation and development needs.

3.3.2.2 Improve Basic Infrastructures

Objective 2.2 Better in access to public service facility

Rationale: Barrier in livelihood development are lack of public service facilities such as access roads, schools and health service. When there is poor road access, there are constrains on market access and even tourism activity is hardly possible.

Action

Act Code	Activity	Responsible agency	Year	Priority
2.1.1	Coordinate with relevant sectors for improvement of road access, education and public health facilities	PPAM	1	1
2.1.2	Surveys and design for infrastructure projects	PWT, EDU, PUH, PPAM	2	2
2.2.3	Funding mobilizing and develop agreements with villagers and khet for conservation commitment for development assistance	PPAM, KB	2	2
2.2.4	Deliver co-financing for the infrastructure development	PPAM	2	2

Remarks: PPAM = Provincial Division for Protected Area Management, PWT = Public Works and Transportation, EDU = Education Office, PUH = Public Health, KB = Kum Ban

Approaches

▪ Basic Infrastructure Development

Promote the development of local livelihoods in the protected area is one of the tasks that must be integrated into conservation. The hope is that livelihood development assistance to the local villagers will reduce their reliance on natural resources and act as an incentive to gain better village cooperation in their protected area management. Infrastructure development is not a protected area activity and it is against conservation objectives to because better road access puts more pressure on a protected area. Nevertheless, it is impossible to support any development activities in Khoun Xe Nongma PPA unless better road access is created. Roads are also needed for future ecotourism development. Thus, in principle, infrastructure development in the protected area is to assist in improving some basic infrastructure needs such as roads that follow the existing tracks, improved education and public serviced including an irrigation schedule. These development activities for the villages and village clusters in the protected area will be liaised with the Provincial Division for Protected Area Management to involve sectors and potential donors.

▪ Other Development Activities

Efforts to reduce reliance on natural resources, provide alternative foods instead of wildlife products, and increase local income will partly help reduce local poverty. However, introduction of development activities in a protected area should always recognize potential adverse impacts may be generated from the invested activities over both the long and short-term. It also important to be aware of whether or not investment activities will be sustainable. Capacity building, providing on-the-job training on various occupational skills in operating and managing some small scale business, business planning, trading etc, are all essential. Human resource development is a key to success in self-development and sustainable assistance. In addition, some development activities include education and public health services. Therefore, development projects in a protected area should be complied with the Integrated Conservation and Development which so called ICAD concept. Whatsoever, the ICAD concept might not always necessary for some villages that are located far from the protected area.

❖ Integrated Conservation and Development (ICAD)

The NPA system in Laos allows local villagers to live in declared areas and takes into consideration the fact that local villagers are the key stakeholder responsible for the protection and management of the protected area. Therefore, the ICAD concept is appropriate for protected area management in the country. Given the linkages between conservation and development, any development activities should be designed to avoid any accidents or bringing new things e.g alien species into the area.

Village and village cluster commitment and agreements can be met as long as livelihood development activities are provided. Before any assistance can be given for improving the livelihoods of villagers, discussion and negotiation with the villagers and village clusters should be fully conducted so as to meet village commitments and conservation obligations. Livelihood development activities should avoid: giving grants, implementing projects on people’s behalf so as to get work done, providing things that villages do not ask for, doing work in which they have no interest or familiarity, or implementing activities without negotiation processes. Ownership will be built through the involvement of people in the process, and their contribution in local materials, labour, and/or cash, including their involvement in the decision making process.

- **Some potential ICAD projects**

There are number of activities that are linked to and appropriate for conservation, typically the development of sustainable agriculture practices and sustainable use of non-timber forest products. Although, some activities are not well linked to conservation objectives, they are supporting conservation in the long-term through the public health and education sectors. For instance, in order to control the population growth in a protected area, family planning and health sanitation can be a solution. When villagers have good health, they will not need to spend their savings for their health services in a hospital. Also, they have full labour for their cultivation. Providing assistance for villagers in livelihood development can include: clean water supply, First aid kit, mid-wife, village doctors who have knowledge of health sanitation, and promoting use of livestock instead of wildlife meat. In addition, the education system can be supported through strengthening teachers’ capacity and incorporating some basic conservation principles into the curriculum of primary and secondary schools in the protected area.

3.3.2.3 Sustainable Agriculture Development

Objective 2.3 *Reduction of forest conversion while increasing rice production*

Rationale : Agricultural land is limited due to contamination of unexploded ordnance (UXO) and lack of water supply for agriculture. Villagers have a rice shortage because of no intensive rice cultivation and that result to low rice production.

Action

Act Code	Activity	Responsible agency	Year	Priority
2.3.1	Coordinate with UXO Office	PPAM, UXO	2	1
2.3.2	Survey and design irrigation at Ban Ta Luoa	PAFO, DAFO	3	2
2.3.3	Study and pilot a new rice variety	PAFO, DAFO	2,3	2
2.4.4	New paddy land cultivation	DAFO	2,3,4	2

2.4.5	Irrigation construction at Ban Ta Luoa	DAFO	3	3
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Remarks: DAFO = District Agriculture and Forestry Office, PAFO = Provincial Agriculture and Forestry Office, PPAM = Provincial Division for Protected Area Management, UXO = Unexploded Ordnance

Approaches

Intensive agriculture extension

- Cultivate new paddy land at Nongma cluster (need to remove UXO), provide irrigation in Ban Ta Luoa. Paddy land can be extended in Houy het cluster.
- Increase rice production by using biofertilizers and transplante a single rice seedling at the clusters and villages that have paddy rice cultivation, particularly Houy het and Nongma.
- Increase hill rice cultivation by supplying new rice variety, find way to suppress rice pests (Ba Lang cluster especially Ban Chanon and Pa Kien).
- Rice bank should be established for Ba Lang cluster specifically for the poorest villages such as Ban Chanon, Pa Kien and Ta Luoa.

3.3.2.4 Household Income generation

Objective 2.4 Promote sustainable household income generation for villagers

Rationale : Much poverty is caused by lack of capital and stabilized income. Villagers' living is from hand to month. In addition, access to market for supplying their agricultural products is difficult and need to be studied.

Action

Act Code	Activity	Responsible agency	Year	Priority
2.4.1	Develop a cow bank (investigate and draft regulation for the bank)	DAFO, PPAM	2	2
2.4.2	Provide trainings for village vets, monitoring the cow bank	DAFO, PPAM	2, 3	2
2.4.3	Deliver a fund for the selected pilot families on the cow bank	DAFO, PPAM	2	2
2.4.4	Identify pilot households for other activities	DAFO, PPAM	2	2
2.4.5	Study market supply for cassava and maize	COM	1	1
2.4.6	Promote cultivation of cassava and maize for Nongma cluster	DAFO, PPAM	2, 3	2
2.4.7	Study the potentials for tourism development	PTO	2	3
2.4.8	Provide trainings on occupational skills	DAFO, PPAM	2	3
2.4.9	Find potential development on agricultural practice	DAFO, PPAM	2	3

Remarks: DAFO = District Agriculture and Forestry Office, PPAM = Provincial Division for Protected Area Management, PTO= Provincial Tourism Office, COM =Commerce Office-

Approaches

- **Household income generation**

Any activities invested in for the purpose of income generation should secure market access. Apart from agriculture products mentioned above, it is possible to develop ecotourism activities which are involved in handicraft development and forest product processing. Nevertheless, prior to investing in any income generation activities, the market potential should be studied.

- **Sustainable Agricultural Development**

Agricultural development is the main strategic plan for district development, which aims to reduce poverty by the year 2015. Agriculture production focuses on planting annual crops, fruits, livestock and production for export to the border market in Vietnam. These include:

- Planting annual cash crops, using natural fertilizers (such as planting maize and soy beans).
- Livestock raising, especially for cows as a model family, is done in groups and uses the revolving fund. However, regular vaccinations for livestock are needed as well as identifying zones for livestock grazing.
- For raising pigs, poultry and native fish in potential villages are other alternatives for income generation and may replace wild meat for meeting dietary protein needs.

- **Sustainable Non-Timber Forest Products (NTFPs) Development:**

This will include proper management, as well as enriching NTFPs in the buffer zones or outside The NPA, so as to reduce the over-use of forest resources in the area.

- The establishment of management arrangements for sustainable use of the forest resources in its habitat relates to the harvesting system, particularly for species with high market demand.
- Added value or processing NTFPs (such as packaging and making various handicrafts like stone or wood carvings to sell as souvenirs).
- Planting/enriching some NTFPs (in their habitats or gardening) for typically those species with high market demand.

The potential for this development has not been studied so far, however, based on general observation, there is a little chance for this in the near term because ecotourism businesses are not in place in part due to difficult road access.

- **Sustainable Tourism Development**

Tourism development may rely on external investment or aid projects. These activities have to be properly analyzed and planned, especially to ensure proper protection and reduction of negative impacts to the protected area. In the meantime, there is a need to build the capacity of local villagers to take ownership in providing tourism services. Therefore, private investors will also need to build the capacity of local communities so as to provide the best services. Accommodation will be a community based approach (home-stay), and giving concessions to private sector actors to take over will be avoided. The suitable areas for promotion of tourism development as below:

In Nongma (culture, nature and visiting the cave of an ex Lao leader), for Balang cluster (trekking, spotting wildlife at Ban Balang where black langur and macaques can be observed

from the village, boating along the Xe Bangfai to Ban La Bouy). The Ho Chi-Minh Trail is the other potential tourism site and therefore any section where the trail is in good condition should be preserved and not used for building roads (such as at Ban Loum poun, some segment before Ban Nongma, also at Ban Balang). However, if road access to the area is still in poor condition, it is impossible for promoting a tourism development, so some roads must be built.

❖ **Principles of Development Implementation**

The development is focused on benefiting the poor, who are motivated in self-development. They can be an example for other villagers and provide some incentive for whoever doing good job for protected area. The Khoun Xe Nongma Office will act as coordination of the relevant stakeholders and other offices at the district level for the implementation of village development tasks in the PPA. The protected area staff should focus on conservation work, particularly the patrolling team should not take charge of being a tour guide in case the tourism activity is in place in the future, for instance.

The PPA office will monitor and manage the budget in cases where those development activities are funded by the protected area project. It will provide consultation services to the participating sectors to ensure that activities will produce positive impacts for the protected area, helping villagers to reduce poverty and improve cooperation for conservation. Additionally, to ensure that development proceeds in line with conservation, discussions and negotiations must take place such as practice for the co-management plan. Development activities should also accord with district development strategies.

❖ **Mobilization Strategy for Protected Area Cooperation Projects**

Today, there are no projects working in villages of Khoun Xe Nongma PPA probably because of the difficulty of road access. If there were some projects working in the area, we would need to understand the objectives of these projects. Seeking ways to link various work together can help to improve local villagers' livelihoods. We should also engage others to help them understand the work of the protected area, such as by showing its role as the main source of food and income for local villagers. However, it is equally important to never initiate contact by criticizing other project activities based on your own views, before properly understanding the projects. This could lead to a failure of communication. Sometimes, different development actors will have their own rationales and views, based on different development principles.

After reaching a mutual understanding, the discussion and negotiation process should start with the exchange of constructive feedback on activities that would directly impact the protected area and to see if they are sustainable. Therefore, coordination with other projects is necessary to assist them in understanding the protected area activities. The introduction of livelihood development activities can include bringing non-native animals and plants from other countries. These introductions can lead to the spread of invasive species and native animals, such as fish, can become threatened with extinction, leading to changes in the area's ecosystems in the long run.

On the other hand, when it is understood that conservation can maintain or increase incomes sources for local villagers, poverty can be addressed. The assistance given by development projects should include adherence to commitments/obligations for conservation. Also, they

might provide some motivating activities, such as a “food for work” programme which compensates patrolling of the protected area with rice.

3.3.3 Capacity Building

Aim 3. Government officials and khet teams are able to implement the protected area management in the future

Rationale : apart from training and awareness raising, there is a need to have some facilities for staff to operate the work and that can be an essential incentive for staff and rangers. Also, major investments can take the lead the implementation/operation and development a working system from the beginning.

3.3.3.1 Provide operating facilities

Objective 3.1 Better management of protected area

Rationale : facilities for implementing the protected area management are needed, station office and sub-station offices. In addition, equipment should be provided to the staff and ranger team. These facilities and equipment can secure the continuation of activities.

Action

Act Code	Activity	Responsible agency	Year	Priority
3.1.1	Surveys and design for station offices	PPAM, PAFO, DAFO	1	1
3.1.2	Purchase vehicles and equipment	PPAM, PAFO, DAFO	1	1
3.1.3	Bidding for station office construction	PPAM, PAFO, DAFO	2	2
3.1.4	Construct and inspect the offices	PPAM	2, 3	2

Remarks: DAFO = District Agriculture and Forestry Office, PAFO = Provincial Agriculture and Forestry Office, PPAM = Provincial Division for Protected Areas Management

Approaches

- **Facilities for operation**

Conduct consultation and planning with village clusters on the station office location as well as purchasing related (see Part 4).

3.3.3.2 Improve a working system

Objective 3.2 Develop a better working system for staff and khet team

Rationale : it is difficult to implement the protected area management systematically since there is no system in place and that can supply a code of conduct and continuous process.

Action

Act Code	Activity	Responsible agency	Year	Priority
3.2.1	Develop a manual, forms be used for administrative work and protected area management	PPAM	1	1
3.2.2	Provide trainings for using the forms	PAFO, DAFO	2	2
3.2.3	Conduct an evaluation and improvement	PAFO, DAFO	3	3

Remarks: DAFO = District Agriculture and Forestry Office, PAFO = Provincial Agriculture and Forestry Office, PPAM = Provincial Division for Protected Area Management

Approaches

▪ Improving a working system

On-the-job training involves improving the capacity of staff and khet team to handle protected area management both in technical and administration work. After practicing for while, the manual for handling the protected area management at khet and district level should be developed (see Chapter 4).

3.3.3.3 Developing a sustainable financing mechanism

Objective 3.3 secure funding support for protected area

Rationale : every time an the aid project ends, the activities stop and those activities must restart from zero again and again. Management activities discontinue due to discontinued funding support. A sustainable financing support of particular protected area is needed. Sustainable funding can be achieved through the PA having its own funding sources or committing to allocate funding regularly and having staff with fund raising capacity available.

Action

Act Code	Activity	Responsible agency	Year	Priority
3.3.1	Training on project proposal development and fund raising skills	EXP, PPAM,	2	2
3.3.2	Meeting and taking negotiation with potential donors	PPAM	Ongoing	2
3.3.3	Develop communication materials for media and website of the protected area	PPAM	3	2
3.3.4	Develop ecotourism activities in the protected area	PPAM, PAFO, PTO	3	2
3.3.5	Promote the area to be a national conservation status	PPAM, PAFO, PTO	3	2
3.3.6	Communication on the importance of the site and tourism activities through various media	PPAM, PAFO	4	3

Remarks: DAFO = District Agriculture and Forestry Office, PAFO = Provincial Agriculture and Forestry Office, PPAM = Provincial Division for Protected Area Management, PTO = Provincial Tourism Office, EXP = Expert

▪ Sustainable Financing Mechanisms

Sustainable financial mechanisms refer to approaches that ensure reliable financial resources with a transparent management system in place that are used correctly and effectively. Financial sources should be developed within the protected area, with mobilizing and looking for committed funds as the key principles. Relying on the external project donors is also necessary to some extent for helping to develop a sustainable system in the beginning. This focus is on how a particular protected area can finance itself and pay for the costs of site management. In order to achieve this, it is necessary to have a benefit sharing agreement for conservation. Alongside the protected area, the Management Committee will be in place to direct, advise and empower the use of funds, such as those sourced from fines. Nevertheless, sustainable financing mechanisms cannot be started for Khoun Xe Nongma since the potential funding sources in the area are limited compared to those of Hin Namno NPA. Having a system of receiving funds from fines and other contributions to patrol teams will provide some sustainable income.

❖ Funding sources

The funding could be sourced from both domestic and international agencies. The domestic budget includes funds from the Government budget, as supported through the Forest Development Fund, the Environmental Protection Fund. Apart from this, funding may also be raised from land use planning, the utilization of forestry resources, mining, tourism, fines and individual contributions. Arrangements for securing funding sources are very important. International funding sources will be sought through interested projects/programmes regarding site management or any research activities by aid projects or international organizations, such as IUCN, WCS and GTZ. This work will be more the responsibility of PPAM.

After the protected area has sufficient facilities and capacities especially station offices, vehicles, equipment, staff, and well trained khet teams. The annual budget for maintaining the PA will be US\$ 120,000.

❖ Fund Raising Mechanisms

Effective funding proposal submission and mobilization requires a long-term strategic plan, including the preparation of data on the importance of the site and its Saola potentials. The Management Plan should also be available in this process for the preparation of initial concept notes for conservation, livelihood development in general and for specific projects. In fund raising we should be aware of the donor selection principles, submission criteria, scope of budget available and timeframe for submission.

Any protected area with a proper co-management plan in place, good technical staff, community participation, and a Steering Committee that supervises general and financial management, will build trust for donors and generate interest. In addition, the performance, success stories and best practices are important to highlight in attracting donors.

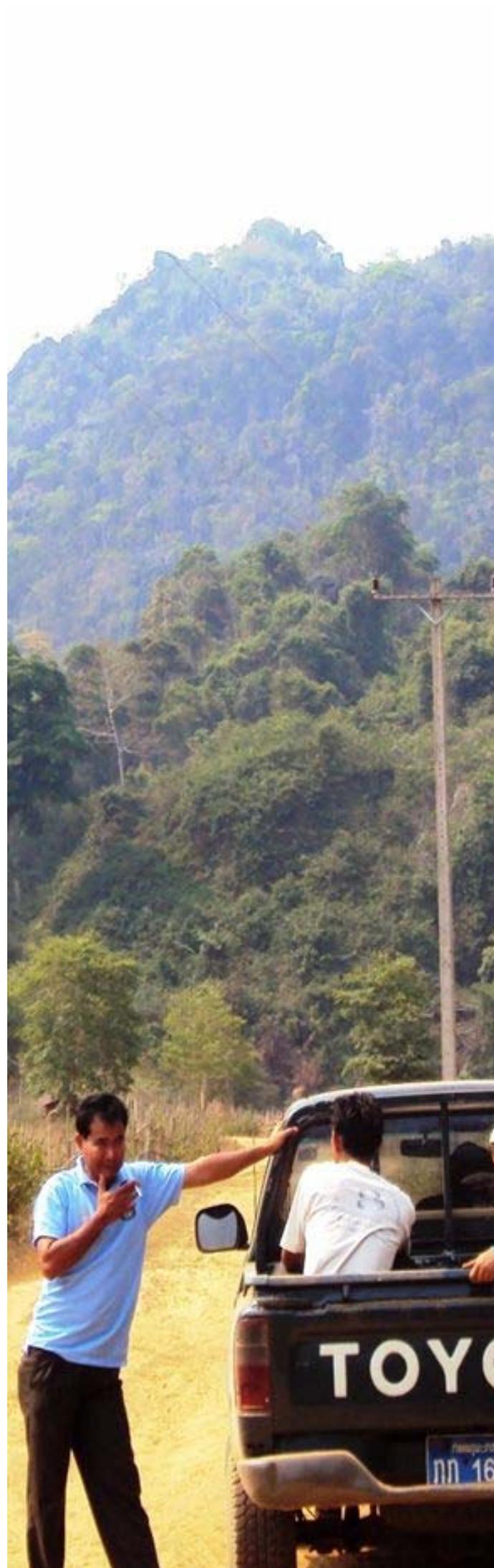
In conclusion, preparedness and using meeting opportunities and negotiation skills is very important. The site should also be promoted worldwide through various means, including on websites, in the media and through the submission of concept notes.

❖ **Financial Management System**

The budget must be well arranged, managed and timely. For building trust and reference for operation, a handbook or manual for practice should be available for the budget administration and management.

Chapter 4. Office Management

This part is about offices, staffing, recruitment strategy, human resource development as well as administration and financial management.



4.1 Office and Staffing

Office location, office specification, staff positions, office general tasks and responsibilities of staff at each level are defined for further formulations as below:

4.1.1 Office

There are three sub-station offices for Khoun Xe Nongma PPA as at Nam Chala, Nongma and Ban Cheng. The sub-station office at Nam Chala will be larger than other sub-station offices. It is considered that the Nam Chala sub-station office will be the station office or the main office in case no station office in Bualapha District. However, liaison office for the protected area will be arranged in Bualapha District. In addition, the Nam Chala sub-station office will be the same location/some building with the Hin Namno NPA sub-station office. This office should provide enough working space and accommodation for at least six staff.

Apart from the offices, there is a need to have three forest guarding posts at Ban La Ngi (belongs to Nongma sub-station, Ban Vat of Houyhet cluster and Pa Sieo. The two last forest guarding posts will belong to the Nam Chala sub-station office. These guarding posts should each provide enough space and accommodation for three staff. Temporary posts will be constructed in case budget is limited.

4.1.2 Units and Technical Staff

Units and technical staff can vary according to the demands and the budget of the NPA. Staff and Khet Rangers should have a uniform specifically designed. Number of staff is estimated including staff and Khet Rangers working based at sub-station offices are showed in Table 8 and 9 below:

Table 8. Position, number of staff of Khoun Xe Nongma PPA

Position	Required qualification	Provin. District	Nam Chala Sub-station	Nongma Sub-station	Ban Cheng Sub-station
Head and Deputy Head	Forestry	2	2-3	1-2	1-2
Technical staff	Forestry, wildlife, biology	3	2	2	2
Planning staff	Forest planning, business management	1	1		
Khet Ranger	Strong interest from villages and khet to be trained		6-8	6	6-8
Administration	Strong interest from villages and khet to be trained	2	2	1	1
Total	(41-48)	8	13-16	10-11	10-13

NB: At least 2 permanent staff with a degree, plus a number of locally trained staff, are to be working at each sub-station office. Village militia who are not assigned as khet rangers will join a patrol and do some function at forest guard post. The staff responsible for budgeting and planning should be needed for the Nam Chala office.

Table 9. Unit and staffing for the sub-station offices

Unit	Province-/District		Nam Chala		Nongma		Ban Cheng	
	Official		Official	Khet	Official	Khet	Official	Khet
Patrol Unit	2-4		2	4-6	2-3	4	2-3	4-6
Outreach Unit	1		2	2	1	2	1	2
Information	1		1					
Administration	2			2		1		1
	6-8		5	8-10	3-4	7	3-4	7-9

NB: staff assigned for Khoun Xe Nongma PPA may be based at district and province.

4.1.3 Staffing Strategy

Staff recruitment can depend on the government hire staff quota allocated, or it can be financed by the project for specific project employment. Priority shall be given to local people who are young, active, hard-working and talented, able to learn and participate in knowledge transfer. Villagers who are interested and motivated in conservation be recruited and trained as local staff to be based at sub-station offices.

4.1.4 Training and Exchanges

Apart from supporting to continue a further study if budget available a study tour and short trainings should be organised during wet season when fieldwork is limited. Topics, locations and participants should be identified to ensure of consisting with the work need because lesson learnt will be enhanced in their areas. The participants should be the group of people have worked in the site, play an important roles and can disseminate and apply the lessons gained. For example, prior to any study tour participants should plan together to work out the expectation from the study tour including report preparation and presentation of the findings and lessons from the study tour with recommendations on potential lessons to be applied in their works.

Lesson exchanges should be organised annually to Phong Nha Ke Bang in Vietnam and Laving Laveun national protected area in Savannaket Province, or being hosted in rotation. Major discussion of this cooperative exchange will be on patrolling how to curb illegal logging, poaching and other topics which each sides should propose their focus of interest and be prepped prior to the event. Lessons learnt through consultation workshops, study tours should be occasionally held. The suitable time is wet season when fieldwork is declined.

4.1.5 Incentive

Staff remuneration should be fair and just; besides the salary and per diems, there shall also be certain fringe benefits, such training opportunities, study tours, bonuses, and care for the livelihoods of staff and their families, as well as khet rangers/village. Staff should receive per diems according to regulations of Ministry of Finance or at higher rate. Line managers should have a strong understanding of the local realities and motivate the staff professionally. Every year, the NPA shall provide uniforms (clothes, hats, shoes, rain jackets) to the staff and members of the khet ranger teams.

4.2 Vehicles and Equipment

Vehicles and equipment are significantly needed for the effective operation of PPA management. They should be well maintained, since they are public property. Vehicles and equipment required for short and long-term as below (see Table 10).

Table 10: Required vehicles and materials

Item	Nam Chala Sub-station		Nongma Sub-station		Ban Cheng Sub-station		Total amount/item	
	Mid-term	Long-term	Mid-term	Long-term	Mid-term	Long-term	Mid-term	Long-term
Car	1	2					1	2
Motorcycle	3	6	2	3	2	5	6	14
GPS	1	3	1	2	1	2	3	7
Video		1		2				3

Item	Nam Chala Sub-station		Nongma Sub-station		Ban Cheng Sub-station		Total amount/item	
	Mid-term	Long-term	Mid-term	Long-term	Mid-term	Long-term	Mid-term	Long-term
Digital camera	1	3	1	2	1	2	3	7
Camera trap		20						
Binoculars	2	6	1	3	2	3	5	12
Compass	1	2	1	2	1	2	3	6
Tent	3	6	1	2	1	3	5	11
Hammock	6	12	6	6	6	9	18	27
Sleeping bag	6	12	6	6	6	9	18	27
Computer	1	3	1	2	1	2	3	7
Printer	1	3	1	2	1	2	3	7
Scanner	1	1					1	1
Video player	1	1					1	1
LCD and screen	1	1					1	1
Audio music player (set)	1	1					1	1
Television	1	1	1	1	1	1	3	3
Mobile loud speaker	1	2	1	1	1	1	3	4
Antenna phone	1	1	1	1	1	1	3	3
Solar cells	3	6		3		3	3	12
Station generator	1	1					1	1
Mobile generator		1	1	1			1	2
Fridge	1	1		1		1	1	3
Water cooler	1	1						
Furniture	1	2	1	1	1	1	3	4

NB: number of vehicles and equipment is not necessary to be purchased at once.

4.3 Office Operation

For the Khoun Xe Nongma Management Plan be successfully implemented requires defining a scope of work at different levels and management units as following.

4.3.1 Scope of Office Duties

Each office has its own terms of reference in order to strengthen their teams and assure progress to reach the Khoun Xe Nongma PPA objectives as planned. The Provincial Division for Protected Area Management assists in the general planning, supervision of technical issues, mobilization of funds and coordination with different partners including donors. The field office and the sub-station offices have the responsibility to prepare activity plans and implement the plans. In addition, each office should provide regular progress reports.

4.3.2 On-Office Duty

The sub-station office at Nam Chala should have at least one staff member on a full duty in order to provide for fast and effective communication should the need arise for an urgent reporting line. The Duty should be allocated to staff in a rotation and with a log-book arrangement.

4.3.3 Meetings

Meetings can be regular or ad-hoc events for the purpose of reporting, sharing lessons learnt and planning. A monthly meeting should be held within each office as needed. An annual meeting will be held in Bualapha District or where appropriate and with the purpose to review, exchange experiences and set up a yearly plan, as well as to carry out staff performance assessment and the select the “employee of the year”.

4.3.4 Reporting

Each office should develop a format report form as to make a report precisely, effective, timely. There will be for reporting, such as monthly (for the team) to the head of sub-station offices to prepare a quarterly report and quarterly for the Provincial Division for Protected Area Management.

4.4 The vehicles and Equipment Management

All equipment must be registered and kept on record, with individual codes. The in-out book for the utilization of office materials should be carefully and regularly maintained. Each office should have a log-book for the vehicle use and maintenance. Each staff member should assume responsibility for equipment use and maintenance including safety and cleaning. All equipment is to be used only for the work of protected area related.

4.5 Data Storage

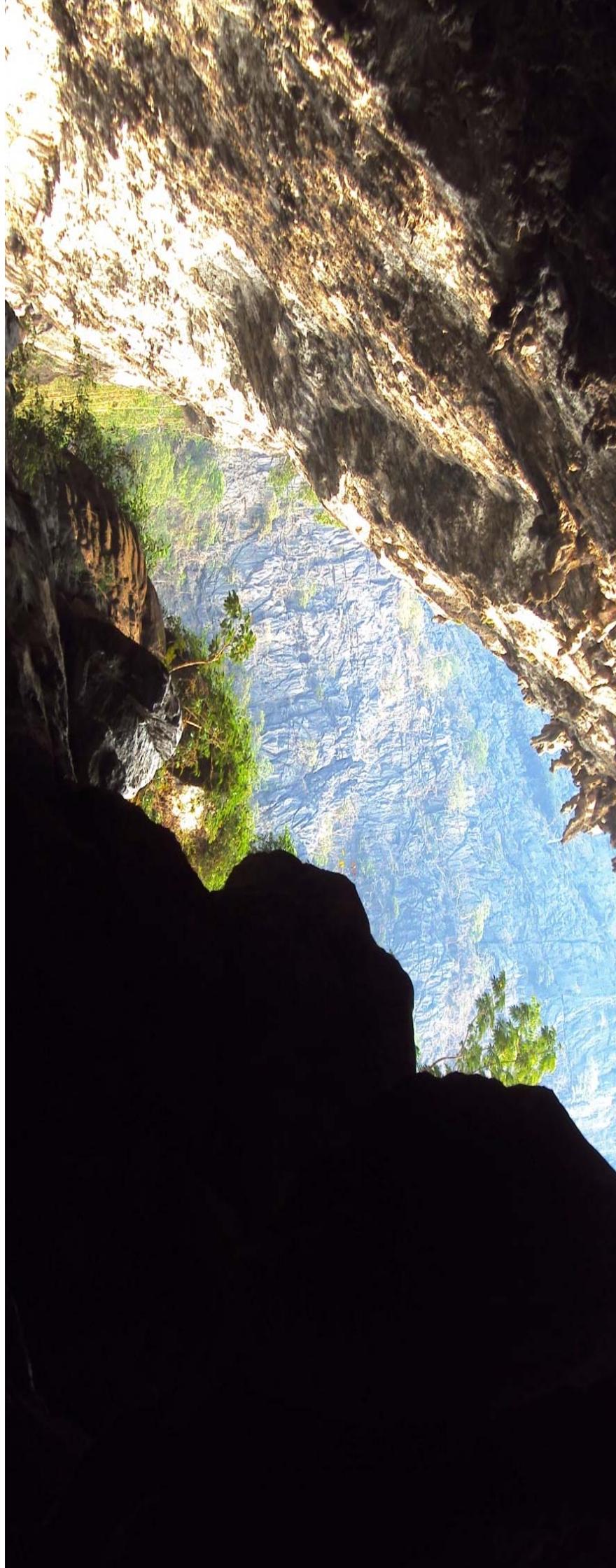
Each office should have a main server or information hub where information is systematically kept with a weekly back up. A database will be installed to ensure that information is readily availability, without any losses. Data in the database should include a system for storing raw data, analyzed data, reports and baseline data for monitoring such as biodiversity and threat levels.

4.6 Finance Management

Effective financial management is an important factor in supporting the successful implementation of any project. The sustainable financial mechanisms of the protected area need to be well developed and managed to ensure systematic financial sources. Thus, nowadays, sustainable financial mechanisms and the human resource development have become a core issue in protected area management in Lao PDR.

Chapter 5. Monitoring and Evaluation

This part provides the method of measuring success for the Khoun Xe Nongma Management Plan. There are four components to be evaluated such as biodiversity, threat, staff capacity and village participation. Indicators of both quantity and quality are defined.



Evaluation of the management plan is needed for measuring success which is dependent upon conservation interventions. However, if budget is limited to support the implementation of the plan, it can be difficult to evaluate the impacts of individual activities. Impediments to the successful implementation of this management plan include difficulties of field conditions, illiteracy limiting local people’s knowledge and the quality of the staff’s work. Of course, the first phase of this management plan implementation will be useful for its further improvement.

The monitoring and evaluation approach designed for this purpose was slightly modified from materials of the Wildlife Conservation Society which focus on four components: (1) staff capacity, (2) village participation (3) biodiversity and (4) threat. Quantitative (outputs) and qualitative (outcomes) should be assessed. The biodiversity and threat components are important because the success of the management plan can be proved when the threat level has declined and biodiversity has increased. It needs to define some key species that can be an indication or representative of biodiversity and changes can rely on the number and frequency of species encounters. Thus, a database should be set up at an early stage for further comparisons from year to year or in the final year of the plan in particular (see Table 11).

Table 11. Measuring success of the management plan

Component	Description	Objective	Indicator	Method	By whom
Staff capacity	Staff capacity on various topics related to protected area management	Average knowledge/capacity of staff is at a good level	The level of staff understanding on the implementation of protected area management has increased by 50%	Pre and Post assessment	Staff
Village participation	Villagers participated in the activities of protected area management, particularly patrols.	The level of village participation in the protected area management plan is at good level	Village participation in the implementation of the management plan increases by 50%	Pre and Post assessment	Staff
Biodiversity	An increase in the biodiversity can be perceived from an increase in the number of identified indicator species. In principle, a sample size is designed to understand a data unit if the species increase and this to mean an increase the biodiversity.	The biodiversity level in the protected area increases	A population of 4 indicator species increased by 10% by 2015	A sample size is designed using the Occupancy method	Staff
Threat	Threat to biodiversity can be identified from the number of individual threats encountered in the designed sampling line transect such as hunting camps, snare lines and	The threat level in the protected area declines	A threat level declines by 50% by 2015	A sample size designed using occupancy method	Staff

	tree cutting				
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NB : indicator species of biodiversity in Khoun Xe Nongma protected area are gibbons, douc langur, barking deer and otters.

Quantity : objectives defined can be achieved unless an increase in the proportion of understanding of staff from trainings and participation in relation to the protected area management. A level of events and number of staff participation can be included as quantitative data.

Quality : objectives defined can be achieved unless the staff who received trainings (patrolling, data recordings and computer use) can apply their knowledge/skills to their work effectively and be able to transfer to other people.

Village Benefits

The Khoun Xe Nongma management Plan is designed for the villagers (villages and khets) to be key players in site management, with support from government. There will be good village ownership if they receive benefits. Benefits that the villagers would gain are:

- ✓ Per diem when they do field work;
- ✓ Some villagers will have job opportunities
- ✓ Project assistance regarding livelihood development, and local capacity and skills;
- ✓ Nature, forest resources are protected and function well in supporting local livelihoods.
- ✓ Receive benefit sharing from the participation in the implementation of law enforcement.
- ✓ Possible, the villagers will have potential income from tourism activity in the future e.g service and selling products.

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Walston, J. and Vinton, M. (1999). *A Wildlife and habitat survey of Hin Namno National Biodiversity Conservation Area and adjacent areas, Khammouane Province, Lao PDR*. WWF Lao Project Office, Vientiane.

Other legal documents refer in item 3.2 were not listed in this reference.

Table 12. Activity Plan and Budget for Khoun Xe Nongma PPA 2011-2015

Main Activity	Priority Activity	Year 1 2011	Year 2 2012	Year 3 2013	Year 4 2014	Year 5 2015	Budget (US\$)	Key responsible agencies
3.3.1 Protection and Management of Biodiversity		204,000	160,000	73,000	55,000	56,000	548,000	
3.3.1.1 Identifying zones and conduct land use planning (1)							100,000	
	Land use planning in 8 villages up to step 5) (1)	30,000	15,000	5,000			50,000	DAFO, PPAM, LUP, KB
	Identify, establish signboards for TPZ and other zones (1)	7,000	1,000	1,000			9,000	DAFO, PPAM, KB, KT
	Construct signboards and boundary marking posts (1)	5,000	10,000	2,000	1,000	1,000	19,000	DAFO, PPAM, KB
	survey, identify corridors and forest rehabilitation areas (2)	5,000	5,000				10,000	DAFO, PPAM, LUP, KB
	Establish info signboards and regulations of PA (2)	10,000	1,000	1,000			12,000	DAFO, PPAM, LUP, KB, KT
		57,000	32,000	9,000	1,000	1,000		
3.3.1.2 Awareness Raising (1)							42,000	
	Design and produce outreach activities (1)	5,000	5,000	3,000	1,000	1,000	15,000	PPAM, LWU, NF, EXP
	Conduct outreach activities including trainings (1)	10,000	7,000	5,000	3,000	2,000	27,000	PPAM, LWU, NF
		15,000	12,000	8,000	4,000	3,000		
3.3.1.3 Patrolling and Monitoring (1)							166,000	
	Establish patrol units (Khet ranger/khet team) (1)	3,000					3,000	PPAM, DAFO
	Defining areas for patrolling (1)	5,000					5,000	PPAM, DAFO
	Patrolling and monitoring including trainings (1)	50,000	40,000	20,000	20,000	20,000	150,000	PPAM, DAFO, AO, EXP
	Provide adult education for khet team (2)	3,000	2,000	1,000	1,000	1,000	8,000	EDU, PPAM
		61,000	42,000	21,000	21,000	21,000		
3.3.1.4 Law enforcement (1)							67,000	
	Develop regulations for protected area management (1)	5,000	1,000				6,000	PPAM, DAFO
	Develop a network of informants at village and khet (1)	3,000	1,000	1,000	1,000	1,000	7,000	PPAM, DAFO
	Training on tactics for curbing poachers (1)	5,000	3,000	1,000	1,000		10,000	PPAM, DAFO, KB, KT
	Conduct patrols outside the PA (2)	5,000	5,000	3,000	3,000	3,000	19,000	PPAM, DAFO, KT
	Deploy villagers for guarding posts (2)	5,000	5,000	5,000	5,000	5,000	25,000	KT, VIL
		23,000	15,000	10,000	10,000	9,000		
3.3.1.5 Surveys for site management (2)							110,000	
	Saola surveys (1)	30,000	20,000	5,000			55,000	PPAM, DAFO, EXP
	Bird surveys (2)		15,000				15,000	PPAM, DAFO, EXP
	Other wildlife and aquatic surveys (2)		10,000	10,000	10,000	10,000	40,000	PPAM, DAFO, EXP
		30,000	45,000	15,000	10,000	10,000		
3.3.1.6 Coordination and Cooperations (1)							63,000	
	Establish Protected Area Committee (1)	3,000					3,000	PPAM, PAFO
	Study exchange with Vietnam (1)	7,000	7,000	5,000	5,000	5,000	29,000	PPAM, PAFO, DAFO, AO, KB
	Stakeholder meetings on roles and responsibilities (2)	3,000	2,000	2,000	1,000	2,000	10,000	PPAM, PAFO, DAFO
	Study exchange with Savannakhet (2)	5,000	5,000	3,000	3,000	5,000	21,000	PPAM, PAFO, DAFO, KB
		18,000	14,000	10,000	9,000	12,000		
3.3.2 Livelihood Development (2)		28,000	122,000	133,000	65,000	10,000	358,000	
3.3.2.1 Feasibility study for livelihood development (2)							10,000	
		10,000					10,000	PPAM, DAFO, EXP
		10,000						
							130,000	
3.3.2.2 Improve basic infrastructure (3)							60,000	PWT, PPAM, PUH
	Improve education and health quality (3)	15,000	15,000	15,000	15,000		60,000	EDU, PUH, PPAM
			20,000	30,000	20,000		70,000	
		15,000	35,000	45,000	35,000			

3.3.2.3 Improve intensive agriculture (2)						110,000	
Improve irrigation scheme in Ban Ta Loua (2)			50,000			50,000	DAFO, PPAM
Increase rice products (a new variety) (2)		5,000	5,000			10,000	DAFO, PAFO, PPAM
Expansion for new paddy land (2)		15,000	15,000	20,000		50,000	DAFO, PPAM
		20,000	70,000	20,000			
3.3.2.4 Household Income Improvement (2)						108,000	
Raising large livestock (cow) (2)		35,000				35,000	DAFO, PPAM
Village veterinarian training (2)		5,000	3,000			8,000	DAFO, PPAM
Market study for cassava and corns (1)	3,000					3,000	COM, DAFO, PPAM
Tourism feasibility study (3)		7,000				7,000	PTO, PPAM
Cassava and corn plantation -(2)		10,000	5,000			15,000	DAFO
Trainings and support other livelihood activities (2)		10,000	10,000	10,000	10,000	40,000	DAFO, PAFO, PPAM
	3,000	67,000	18,000	10,000	10,000		
3.3.3 Capacity Building	85,000	62,000	38,000	18,000	13,000	216,000	
3.3.3.1 Develop and provide facility for operation (2)						163,000	
Sub-station offices and guarding posts (1)	30,000	30,000	20,000			80,000	PAFO, PPAM, DAFO
Vehicles and equipment (1)	40,000	20,000	10,000	10,000	3,000	83,000	PAFO, PPAM, DAFO
	70,000	50,000	30,000	10,000	3,000		
3.3.3.2 Improve working system (2)	10,000	7,000	3,000	3,000	5,000	28,000	PPAM, DAFO
3.3.3.3 Develop a sustainable financing mechanism (3)	5,000	5,000	5,000	5,000	5,000	25,000	PPAM, PAFO
4. Administration and Management	70,000	67,000	57,000	55,000	57,000	306,000	
Office admin, hiring local staff	20,000	20,000	20,000	20,000	20,000	100,000	PPAM, PAFO
Meetings related to finance and others	10,000	7,000	7,000	5,000	7,000	36,000	PPAM, PAFO
Experts (fixed or hired contract for specific tasks)	40,000	40,000	30,000	30,000	30,000	170,000	PPAM, PAFO
Sub-total per annual	387,000	411,000	301,000	193,000	136,000	1,428,000	
Contingency (5%)	38,700	41,100	30,100	19,300	13,600	142,800	
Total budget	425,700	452,100	331,100	212,300	149,600	1,570,800	

NB : DAFO = District Agriculture and Forestry Office, PPAM = Provincial Division for Protected Area Management, PAFO = Provincial Agriculture and Forestry Office, LWU = Lao Women Union, NF = National Front, PWT = Public Works and Transportation, EDU = Education Office, PUH = Public Health Office, LUP = Land Management Office, AO = Army Office, COM = Commerce Office, KB = Kum Ban, KT = Khet Team, VIL = Village, EXP = Expert

Figure 6. Views of Khoun Xe Nongma Provincial Protected Area



Xebangai River, Ban La Bouy



Fallows in Ban Balang and Phou Kalang Mountain Range



Ban Pakeun, Khet Balang



Rice cultivation in Khet Balang

Figure 7. Villages in Khoun Xe Nongma PPA



Ban Chanon, Khet Balang



Ban Balang