



Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity



Phou Chom Voy Provincial Protected Area

MANAGEMENT PLAN

2011 - 2015



Provincial Agriculture and Forestry Office of Bolikhamxay
December 2010

Publized by: Provincial Conservation Division
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Lao People's Democratic Republic
Peace Independence Democracy Unity Prosperity

Bolikhamxay Province

No.....
Paksane, Dated.....

Decree
of the
Governor
of the
Bolikhamxay Province

- Pursuant to Forestry Strategic by year 2010.
- Pursuant to Forestry Law, No.04/NA, Dated 24 December 2007
- Pursuant to Aquatic and Wildlife Law, No. 07/NA, Dated 24 December 2007
- Pursuant to Provincial Environment Action Plan 2006 - 2010 of Bolikhamxay, No. 47/BLX, dated 07 February 2006.

The Governor of Bolikhamxay Province Decrees that:

- Article 1.** The Phou Chom Voy Management Plan for the period of: 5 years starting from 2011 to 2015 is hereby promulgated
- Article 2.** Appointed the Provincial Agriculture and Forestry Office to supervise on implementation of Phou Chom Voy Provincial Protected Area Management Plan
- Article 3.** Other agencies and sections of province and district level that relate to this plan should be collaborated to accomplish the goals and objectives
- Article 4.** This decree shall enter into force on the dated it is signed.

Governor of Bolikhamxay Province

Acknowledgement

The current global environmental situation has become an importance issue that affects human resources and biodiversity on the earth. Human populations and urbanization are growing very fast and resulting in unsustainable use of natural resources. The environment is being damaged by human activity, and this increases poverty for rural people all around the world. From this environment situation, social-economic development must be done in a way that allows for sustainable use of natural resources by least developed and developed countries.

From this point of view, the socio-economic development plan with sustainable use of natural resources base is necessary for the industrialized countries, the developing countries including the least developed countries. Therefore, Lao PDR, as well as Bolikhamxay Provincial and Khamkeut District adopts the balance socio-economic development and biodiversity protection in the Phou Chom Voy Provincial Protected Area and sustainable use of natural resources.

Therefore, I call upon all agencies both public, private, people and individual to contribute actively to the sustainable biodiversity protection and without threats.

The Phou Chom Voy Provincial Protected Area Management Plan is a reference document for setting up short-term and long-term work plans for the Phou Chom Voy PPA in order to strengthening the ability of government staff within the protected area as well as in District Agriculture and Forestry Office to work as a secretary protected area performance to the province.

This management plan will be used by planners, Phou Chom Voy PPA staff as well as other protected area staff. However, the Phou Chom Voy PPA management plan is also a strategic plan that can be used by biodiversity conservation partners, other projects and donors as a guideline.

I would like to acknowledge and thank the protected area staff, experts and Consultant Technical Advisor whose assistances helped to improve this management plan. Once again we also want to thank all of team leaders and technicians who gave commences on the Phou Chom Voy PPA Management Plan and I expected that the management plan will be significantly useful to socio-economic development of Bolikhamxay Province.

Bolikhamxay Provincial Agriculture and Forestry Office

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Introduction

The Phou Chom Voy Provincial Protected Area (PCV PPA) Management Plan is a reference document for setting up short-term and long-term work plans for the Phou Chom Voy Provincial Protected Area in order to strengthening the ability of government staff within the protected area as well as in the two districts such as Khamkeut and Xaychamphone of with 13 villages surroundings (two villages jurisdiction by Xaychamphone District). The Phou Chom Voy Provincial Protected Area PPA follows the recommendations of the District Socio-economic Development Plan of Khamkeut and Bolikhamxay Province strategic plans as well.

The Phou Chom Voy Provincial Protected Area (PCV PPA) Management Plan will be used by planners, students, researchers District, and Provincial Protected Area Staffs as well. Nevertheless, the PCV PPA Management Plan is also a strategic plan that can be used by biodiversity conservation partners, other projects and donors as a guideline.

This document has three parts. Part 1 describes the Khamkeut District; Part 2 describes the PCV PPA and Part 3 the Management Plan and includes appendices.

Part I. General Context of Khamkeut District

1. Geographic and Hydrologic status

1) Topographic Features

Khamkeut District has rich of indigenous ethnic, is situated the South-East of Bolikhamxay Province, which far from Paksane District roughly 200 Km, it borders with:

- Xaychamphone and Viengthong District to the North
- Nakai District (jurisdiction by Khammouane Province) to the South
- SR Vietnam to the East
- Hinboun District (jurisdiction by Khammouane Province) to the South-west.

The total area of Khamkeut District is 2,510 sq.km, of with 65% is mountainous, Agriculture production area consists of 7.23%, Forest covers 82.2% and other 0.72% and rich of natural resources as well.

2) Hydrologic Status

The weather of Khamkeut District has influent by the southwest humid monsoon between Aprils to October. About 90% of annual rainfall falls during this time period. The dry season is during November to March most of the time there is no rain, but on the other hand sometimes there is a heavy rain influenced from Vietnamese storms or typhoons. Therefore the rainfall is differed between the Mekong River plain and the Annamite Mountains especially with higher rainfall at the higher altitudes. The period of total rainfall

sometimes is 10 months; however the detailed hydrological data within this area is still insufficient.

The average annual rain fall is less than 2,000 mm around Pakxan Town and more than 3,000 mm at the eastern province. The low temperature is between December and January in Pakxan Town where the average temperature is about 16.91⁰C. The hottest month is March with the high temperature of about 34.36⁰C. On the other hand, at the same period the temperature in the eastern part of the province (Laksao) is lower by 4⁰C.

2. Social - Economic Situation

A. Administration:

Khamkeut District administration consists of 9 village development groups, 68 villages, 9,245 households, 9,304 families, the total of population is 58,328 inhabitants, of with 28,898 female, the children (0-14 years old) is 28,468 inhabitants representing 48.8% and age more than 60 year old is 905 inhabitants representing 1.55%, of with 561 female, education completed the secondary school year 3 is 3,358 people representing 5.75%. The government administration office comprises 25 offices, the total officials line is 762 persons, of with 348 female, officials representing 1.3%, and unofficial 4 persons representing 0.53%. Completed technical school 199 persons represent 26.11%, graduated diploma 377 persons, higher diploma 155 persons representing 20.34%, bachelor 48 persons representing 6.29persons and master 9 persons representing 1.19%.

B. Educational

The entirely district has two nurseries; there are 176 pupils, and 15 teachers. 11 temporary primary schools, there are 1,012 pupils, and 27 teachers. 57 permanent primary schools, there are 11,274 students and 279 teachers, 6 secondary schools, there are 1,184 students and 39 teachers, 2 upper secondary schools, there are 1,432 students and 34 teachers, one ethnic school, there are 257 students and 7 teachers, 2 private schools, there are 327 students and 28 teachers. The adult (15-40 year-old) is 16.51%. Teaching and studying quite good quality, still lack of teachers and stationeries. In the past, district has built many schools, but up to date still not enough due to population grow up and lack of maintenance. Over a 5 year period, the education development plan has put in to practice and good result and quality as following:

- The king garden kids: nursery and preschool attain is 3.67%, increased 1.03% and the maximum number of children in king garden kids is 3.43%.
- Primary school: The total attention rates is 14%, decreased 16.62%, the maximum number of children in school is 91.3%, increased 9.32%, the average dropping school is 23.54%, increased 0.14%, the average dropping school is 2.37%, and decreased 0.62%. The average of children did not pass exam in the primary school is 80.56%.
- Secondary school: the total attention rates is 62.29%, increased 17.91%, the maximum number of pupils in school is 27.04%, increased 20.13%, the average

student who did not pass the exam 1.7%, decreased 13.97%, absence 1.0%, decreased 5.1%, the completed examination rate is 97.3%.

- **Upper secondary school:** the total attention rates is 36.78%, increased 12.72%, the maximum number of students in school is 57.18%, increased 55.88%, the average dropping school is 1.1%, decreased 9.66%, The average of children did not pass exam in the upper secondary school 21.2%, decreased 11.34%, the completed examination rate is 99.46%.

C. Health

In the duration of 5 year 5 passed, there is one district hospital, 9 health care centers, 4 clinics, 20 pharmacies, 68 drug bags, and district have government employees such as 4 people are master degree of medicine, 9 people are diploma, 38 people are lower diploma, 58 people are technicians, 148 people are nurses and 42 are fortune tellers. The quality of service implemented is as following: the mortality of mother decreased 0.1% compared to year 2004 was 0.5%. the nursery of children less than one year old decreased 32% compared to 2004 was 7.2% of children less than 5 years old compared to 2004 was 8.5%; the population growing rate represents 2.05%, 7 villages are developed as model of health care, 89% represents of get vaccine for pregnant, children and women. 94% are use mosquito net and dengue fever is declined sharply, 63% of population has accessed to clean water and 15% accessed to hygienic latrine. The disease are always happened in around district are diarrhea and breath infection.

D. Agriculture and Forestry

- **Planting:** the district has targeted to produce rice at least 7,000 tones such as 6,885 hectares are rainy farm, the rice 3.5tones per hectare, with 24,100 tones of yield and 200 hectares are irrigated farm, the rice 4.5 per hectare, with 900 tones of yield and total of rice production is 25,000 tones, the average 400 kg / person / year. The shifting cultivation is absolutely stabilized, increase 10% of commercial crop and 10% for industries.
- **Animal husbandry:** Encourage villagers to increase 2.0% of livestock raising by working as a group.
- **Veterinary:** Focusing on promotion of veterinarian to take care of animal's health to get vaccine 50% of the total cattle herd.
- **Fishery:** Encourage villagers to do fish farms by find raising from organizations in the district. 5 tons per year are expected to produce fishes.
- **Irrigation:** 11 projects with cost of LAK 2.5 billion are expected to survey and design for construction and 8 projects with LAK 3.5 million to repair including maintenance.
- **Forestry:** encourage villagers to afforest by planting industry woods to get 100 - 200 hectares per year, 5 projects with cost of LAK 2.5 billion.
- **Stabilize Slash and Burn Cultivation and Land Allocation:** make an effort to absolutely stabilize slash and burn, designate every household has agriculture

production area, continue to do land allocation and land use planning to get about 1,000 hectares represents 7.5% of whole district.

E. Public Work and Transportation

- **Transportation:**

Continue to make an effort to improve of transportation between district and clusters and villages to be more facilitated. There are two season road to every remote area and 5 road projects with the cost of LAK 19.1 billion, 6 bridges project construction with the cost of LAK 3.14billion and 8 road repairing projects with LAK 4.989 billion are planned to construct to be more facilitate logistic of goods and passengers and serve the increase of products and passengers as well.

- **Construction and Architectural:**

Propose to develop district road network such as improve urban main road and section road to be completed and designate build up of people, encourage 11 villages and 254 households represents 100% in urban area to access clean water. Continue to coordinate sectors concerned to develop clean water supply system. Finished of clean water supply construction of Nongor community with the cost of LAK 1.5 billion, and continue to boost domestic investment such as build the bus station with the cost LAK 2.3 billion

3. Natural Resources Values

A. Forestry Resource Values

Forest resources have played a central role in the economics of the province. In 2000, the peak value for production derived from the forest was 29.42% of the total economy of the province. In the near future, the way forward for the province is to lead with forest resources and production of forest products. The economy of Bolikhamxay has still not greatly increased; therefore the environmental values remain very important. Bolikhamxay Province is a place that people depend on for relaxation, ecotourism, rejuvenating the heart, and for strong health. Forest resources are a place for production and collection of food for the rural population, as well as a source for traditional medicine. Furthermore, the forest plays an important role in protecting watersheds, reducing erosion, and is something the people rely on.

- **Current Status:**

Bolikhamxay Province currently has more than 63% forest cover, approximately 15,996 km². There is an abundance of forest resources, high biodiversity, vegetation types, and wildlife of national and international significance. There are also wood species with high economic value: Fokenia, Agar wood, Sandalwood, *Afxylia Xylogapa* (Mai Dtae), *Hopea Odorata* (Mai Kaen), Mai Muea Ohn, and also medicinal trees.

Protected areas cover 382,404 hectares or about 24% of the province. Of this, 296,070 hectares are National Protected Areas, 52,152 hectares are Provincial Protected Areas, and

34,182 hectares are District Protected Areas. Below are more specific details for each protected area:

- National Protected Areas cover 18.5% of the province's land base
 - Nam Kading NPA is 169,000 hectares, or 10.6% of the province
 - Nakai NPA is 27,070 hectares, or 1.7% of the province
 - Phu Khao Khouay NPA is 100,100 hectares, or 6.3% of the province
- Provincial Protected Areas cover 3.4% of the province's land base
 - Phu Kurt PPA in Paksan District is 1,000 hectares, or 0.06% of the province
 - Phu Kadan PPA in Pakxan District is 728 hectares, or 0.05% of the province
 - Nam Jaad – Nam Ban in the Ngod Nam area is 37,600 hectares, or 2.4% of the province
 - Phu Ngou PPA in Paksan District and Pak Kading is 12,824 hectares, or 0.8% of the province
- District Protected Areas cover 2.1% of the province's land base
 - Phu Muang DPA to the Saan stream in Bolikhan District is 4,150 hectares, or 0.26% of the province
 - Phu Paa Saan DPA to the Nam Muang River in Bolikhan District is 4,032 hectares, or 0.25% of the province
 - Phu Muun Nam Sao DPA in Bolikhan District is 5,200 hectares, or 0.33% of the province
 - Phu Taa Sii – Siang Leu DPA in Bolikhan District is 20,800 hectares, or 1.3% of the province

- **Challenges**

The forest resources within Bolikhamxay Province are still undergoing a reduction. The forest resources are declining as a consequence of production and use by the population living in Bolikhamxay Province. This is resulting in a climate change, changing seasonal rain patterns, drought, flood, erosion, and loss of topsoil.

- **Causes**

- Rules and regulations are still remain unclear
- Excavation of forest resources in areas that maintain natural features which enable natural forests to grow and flourish
- Clearing of the forest by local people for Sweden agriculture
- Increasing population and in-migration of people from northern provinces
- Increasing land area being put into agricultural production
- Increasing infrastructure development, including: highways, hydroelectric dams, and irrigation

4. Culture and Tourism

A. Culture

The improvement and development of information system such as expanded of radio broadcasting to the whole district including remote area. Find any way to get speakers for every village, concentrate on promotion of culture, prevent drug trafficking and other crisis, in the next 5 years expected to establish model of cultural village of more than 50% represents whole district.

B. Tourism

Continue to survey, collect destination information, boost government investment, individuals and foreign to develop a few of tourism site and to facilitate things in urban area to serve visitors of more than 5,000 persons / year, to reach the target above, there are 2 projects with the cost of LAK 0.5 billion to support.

5. Social- Economic Development Plan of Khamkeut District 2009 - 2014

The economic development must emphasize production for trade including agriculture, industry, service and tourism at the same time increasing social development and environmental protection. Economic growth will set up the modern society and with justice for all and promote the education system in both quantity and quality in order to enhance people livelihood as following:

- 1) Should have socio-economic development plan simultaneously with protection of environment
- 2) Economic improvement and promotion of individuals and corporation of villagers should do the same time of district sector lines to robust district economy
- 3) Construction and infrastructure development should focusing on focal area
- 4) Continue to cooperate and enhance of economic development, investment and services with neighboring countries, in particularly, the special collaboration with Heuang Zeun District (SR Vietnam)
- 5) Continue to improve, adapt and strengthen in budget management and develop financial mechanism and measure to do fundraising in the future to be effectively and make an effort to reduce budget deficit. In the next 5 years district should become self feed in budget and propose to province to classify of clearer income
- 6) Together to develop new mechanism to promote and applying the advanced and modern science and technology in production and economic development by focusing on immediately reduction of social crisis
- 7) Should create the agreement between government officials and village groups in data collection and database development of socio-economic to provide accurately information to draw work plan in the future.

5.1. State investment

The expected of state investment in the next 5 years is 129 projects, with the cost of LAK 75.5 billion such as 19 projects with cost of LAK 35 billion for production, 28 projects, with cost of LAK 15.5 billion for services and 110 projects, with cost of LAK 25 billion for social and culture.

5.2. Domestic, Individuals Investment and Foreign Grant

5.2.1. Domestic Investment

Two projects, with cost of LAK 2 billion are expected to be implemented and follow up (2+3) model by focusing on planting, livestock raising and services.

5.2.2. Individuals Investment and Foreign Grant

Two projects, with cost of LAK 3 billion are continued project and expected of 97 projects, with cost of LAK 43 billion are granted.

5.3 Rural Development and Poverty Alleviation

Continue to develop infrastructure and rural development and poverty eradication by relying on village development and committee by following the 4 goals and objectives to allocate budget and reform staffs to make an effort to alleviate poverty or focal area in compliance with priority project targets. Continue to regularly monitoring of land allocation and land use planning and land tenure effectively to be in line with government policies and projects on improving of people livelihood, reduce gradually of poverty gap of rich, poor people in district and rural area. Deal with the improvement of approved funds to put in to practice and establish 15 villages more (15 projects) with the cost of LAK 500 million kip, keep on develop poverty alleviation plan by communities of village group involvement such as encourage to set up 150 of production groups, the expected support of bank, and make an effort to reduce poverty by 80% of whole household in the district to accomplish goal and 5 years action plan and expected 4 major donors such as Namtheun 2 Hydropower Company, Theun Hinboun Hydropower Company, Military Mining Project and Banks.

Part II. Phou Chom Voy Provincial Protected Area (PCV PPA) Management Plan: 2011 - 2015

1. General Status

The Phou Chom Voy Provincial Protected Area has established in 1996 base on the first issued of forestry law. This PPA is located in the eastern part of the province at the border it shares with:

- Xaychamphone District to the north with the total area of about 800 ha;
- Road No.8 leads to Lao-Vietnam border to the south;
- Vietnam (along the Sayphoulouang) to the east.

The Phou Chom Voy PPA is out of which 5 Provincial Protected Areas, and 3 National Protected Areas in Bolikhamxay Province with the total area of 354.231 ha, and 22,305 ha are the total area of Phou Chom Voy PPA, represents 6.2%. in the nearly future , provincial will coordinate with Theun Hinboun Hydropower Company (THPC) to survey and designate appropriate area for watershed protection or management area to link with Phakouanchanh PPA and Namngoung Protection Forest Area to be sustainable watershed management in accordance with national state policies by using 2 conceptions as following:

- (1) Communities site- base PA management and protection
- (2) Effectively conservation simultaneously with rural development, livelihood improvement, ecotourism and culture.

2. Topography and Water Sources

The PhouChomVoy PPA is not a large protected area. Its total size is 22.305 ha. The location is mountainous with high slopes from the eastern to the western part. The PPA is located entirely above an altitude of 500 meters above sea level. Several ridges exceed 1,200 meters in altitude. The highest mountaintop is Phu Chom Voy with an altitude of 1,821 meters.

This PPA is important for watershed protection as it contains the sources of several important rivers such as the Nam Yuang and Nam Phao. The largest and most important rivers are the is Namchat and Nampan,. In addition, Namchat and Nampan have several smaller branches flowing out from different valleys. It may be said that this area is a source of water in its pristine conditions and biodiversity wealth. These streams also provide habitat for fish and many aquatic species, such as: Pa Sa, Pa Va, Pa Mon, Pa Ko, Pa Cha (*Poropantius laosensis*), Pa Khingkom (*Crossocheilus reclusus*), Pa Ketkheng (*Cyclocheilichthys armatus*), Pa Doknio (*Discherodontus ashmeadi*), Pa Sout (*Hampala dispa*), Pa Khilam (*Labiobarbus lineatus*), Pa Pak (*Hypsibarbus suvattii*), Pa Pien (*Scaphognathops bandanensis*), Pa Langnam (*Labiobarbus leptocheilus*), and reptiles, such as soft-shell tortoise, tortoise and others.

3. Climatic and Soil Conditions

According to the 2000/2001 data of Laksao meteorological station, rainfall is nearly non-existent in November, December and January (three months per year). The PPA, even with its proximity to Laksao, has different climatic conditions with year-round rainfall and clouds. Rains are light from August to September as a specific feature of the Sai Phou Luang Range. air pressure causes systematic winds and the climate could be described as humid and cool throughout the year. According to local villagers, this area is so humid that it is difficult to light a fire for cooking.

The soil in certain places is made of gross sand mixed with a layer of soil made of fossils and in other places is made of yellow clay mixed with layers of rocks. In case of rainfall lasting several days, landslides frequently occur and require constant road maintenance every year.

4. Forests

The climatic conditions of this PPA with year-round rainfalls and clouds, its low temperature, high humidity and strong winds, have allowed the dense growth of several plant and tree species. Trees with average trunks and height would generally display a diameter of less than 40 centimeters. Important species include species generally growing in mountainous areas in the country, such as May Mee (*Schima wallichii*), May Safay (*Liquidambar formasana*), May Konam (*Castanea* sp.), May Kotamou (*Listhocarpus* sp.), May Kanbuang or Chalo, May Ham (*Michella masticta*), May Hing (*Crotalaria* sp.), May Puay (*Lagerstromea* sp) and others. Importantly, at the source of Nampan, May Longleng (*Fokiena kawaii*) also appears in substantial number. In addition, this area is also wealthy in forest products, such as cardamom (*Amomum* sp), resin, Vay Thoun (*Calamus dioicus*), Vay Noy (*Calamus javansis*), May Ketsana (*Aquilaria carssna*), Ton Kho (*Livistona saribus*), palm tree, Sikhay Ton (*Cinnamomum porrectum*) and others. Prominent bamboo species include May Khom, May Hie (*Cephalostrachyum virgatuym*), May Sot and May Lo. There are many creeping species, some of which may be processed into medicine, such as Keu Hem.

5. Wildlife

The baseline survey of wildlife in Phou Chom Voy PPA has conducted 2 periods as below:

– Period 1:

The inventory performed by the fauna survey team of the Forestry Division and Wildlife Conservation Society (WCS) during 1996-1998 both within and outside the PPA used several methods such as village interviewed and identified wildlife and habitat, and got result of species were found in the Phouchomvoy Provincial Protected Area, such as Saola (*Pseudorax ngetingensis*), large deer (*Megamutiacus vuquangensis*) and wild pigs (*Artonyx collaris*, boars (Pigg spp) and others. According to interviewed villagers of Ban Phonkham, certain wildlife species are still widespread within the PPA, especially large deer (*Megamutiacus vuqua ge nsis*), Bang (*Trogopterus* sp), deer (*Cervus unicolor*) and boars. Certain species have now

dwindled in number due to hunting for commercial purposes, such as elephants (*Elephas maximus*), tigers (*Panthera tigris*), bears (*Ursus thibetanus*), gibbon (*Hylobates gabriellae*), Khadeng (*Pygathrix nemacus*), Meuy (*Bos gaurus*), Nyeuang (*Naemorhedus sumatraensis*) and others. Birds are also numerous in terms of number and species. Rare species include Nok Yung (*Pavo muticus*), Kay Pa (*Gallus gallus*), Kay Khuanin (*Lophura diardi*), Nok Kok Khokham (*Bucerus bicornis*) namely.

– Period 2:

The inventory performed by the fauna survey team of the Integrated Ecosystem and Wildlife Management Project (IEWMP) or Namkading NPA project of Bolikhamxay Province by setting up 30 automatic camera traps in around Phou Chom Voy PPA and captured of animal pictures as Long-tailed Goral (*Naemorhedus caudatus*), Red Muntjac (*Muntiacus muntjac*), white chest gibbon (*Hylobates sp.*), Annamite timm insi (*Lepus sp.*), civet (*Paradoxurus sp.*), All otters (*Lutra sp.*), Striped-back Weasel (*Mustela strigidorsa*), Hoopoe (*Upupa epops*), macaques (*Macaca sp.*), Northern Slendei - tailad Treeshrew, Wild Boar (*Sus scrofa*), Crab eating mongoose (*Herpestes sp.*), Inornate Squirrel, Siamese Fireback (*Lophura nycthemera*), Masked Palm Civet (*Paguma larvata*), Hog Badger (*Arctonyx collaris*), All owls (*Tytonidae and Strigidae*), Red Junglefowl (*Gallus gallus*), Crested Argus (*Rheinardia ocellata*), Large-toothed Ferret Badger (*Melogale personata*), Asiatic Brush tailed Porcupine (*Atherurus macrourus*), and East Asian Porcupine (*Hystrix brachyura*).

6. Socio-Economic Conditions and Impacts on the PPA

6.1 Socio-Economic Conditions

The local population living in and around the PPA with the total of 13 villages and population 10,103 inhabitants out of which 4,945 are females, the number of families are 1,644, and 1,316 are households and 2 villages with total of inhabitants is 580, out of with 256 are female to the jurisdiction by the Xaychamphone District. Totally of composed of ethnic groups such as Toum, Hmong, Phou Thay, and Meuy by order. Each ethnic group has its specific language, customs and lifestyle. Each of these ethnic groups has formed scattered settlements and generally builds huts and lives near their highland rice fields and rivers. To facilitate development, the Party and Government's policy is to gather smaller settlements into larger villages. Therefore, the above-mentioned 13 villages were grouped from small in to larger village. The approximately 80% of major of these villages have access gravity road and power, about 70% of villagers rely on rice farming and 90% is livestock raising farm. Beside this in the year 2013 there are about 6-7 villages where shall impact of Theun Hinboun Hydropower Expansion Project will move to settle adjacent the PCV PPA.

6.2. Impacts on the PPA

In general, the PhouChomVoy PPA is one of the reserve forests that have conserved their wealth in world and regional important forest resources and biodiversity. The PhouChomVoy management has done a formal threat assessment to biodiversity.

6.2.1. Internal Aspects

There are many internal aspects that threaten the management of the Phou Chom Voy PPA. These include:

- Bolikhamxay Province has more protected areas that are not yet management and protection plan properly,
- Organization of protected area: Bolikhamxay Province has unclear organization on protected areas management system, the management emphasis only on national protected area, excepted provincial and district protected areas still do not have technical protected areas management system addition for law and registration enforcement also does not effectiveness therefore there is encroachment and illegal logging inside protected areas that cause to biodiversity loss,
- Attitude and acknowledgement of staff, military, police and local communities on protected areas is still lack, especially as it relates to the corridor zone, buffer zone where there is less patrolling and monitoring, and
- Currently, will impact of Theun Hinboun Hydropower Expansion Project due to the catchment and river branches water level will go up such as Nammouane and will have the access road by boat and bring more threats to the protected area and resettlement area as well.

6.2.2. External aspect

As the location of PCV PPA shares border with Vietnam and its threats are following:

- The forest and wildlife are high value and market demand in the country and neighboring, there for these attraction leads to enable traders try to make an effort to destruction of natural resources and hunting of wildlife as well and rise pressure for PCV PPA management. On the other hand, this protected area is currently still abundant of resources which belong to provincial and national property.
- The fauna has also been affected by many impacts. Some highly valued species due to the social belief in their medicinal and decorative features were formerly numerous, but may presently be rarely found, while widespread species include only species of low value. Devices used in hunting include traps that may catch small wildlife species – such as lesser mouse deer, civet – to large animals – such as tigers, bears and others. In addition to traps, guns and other devices are also used. Hunting and trapping for local and regional markets is large in PhouChomVoy and is the number one threat many hunters and trappers are from Vietnam so this complicates law enforcement activities.
- In addition to impacts on wildlife species, different varieties of forest resources have been exploited and gathered in substantial amount, such as May Ketsana which remaining stock is presently considered to be very small. In the following order, exploitation also affects Mak Tao, Mak Kho, cardamom, Puak Meuak, Peuak Bong

and others. The gathering and exploitation of these varieties are unsustainable. Due to the lack of clear and official delineation of the PPA's borders, the local population has recently cleared forested land within the PPA for the construction of dwellings and cultivation over a total of several tens of hectares.

PART III: GOALS, OBJECTIVES, ORGANIZATION AND COMPONENTS OF THE MANAGEMENT PLAN

1. Goals

- Preserve the abundance of plant and wildlife species, growing in year-round humid and dense forests along the Sai Phou Luang especially species of world and regional importance, more specifically saola, large antlered deer and others.
- Supply water resources for national socio-economic development.
- Meet the requirements of the local population for the proper and sustainable use of resources within the PPA.

2. Objectives

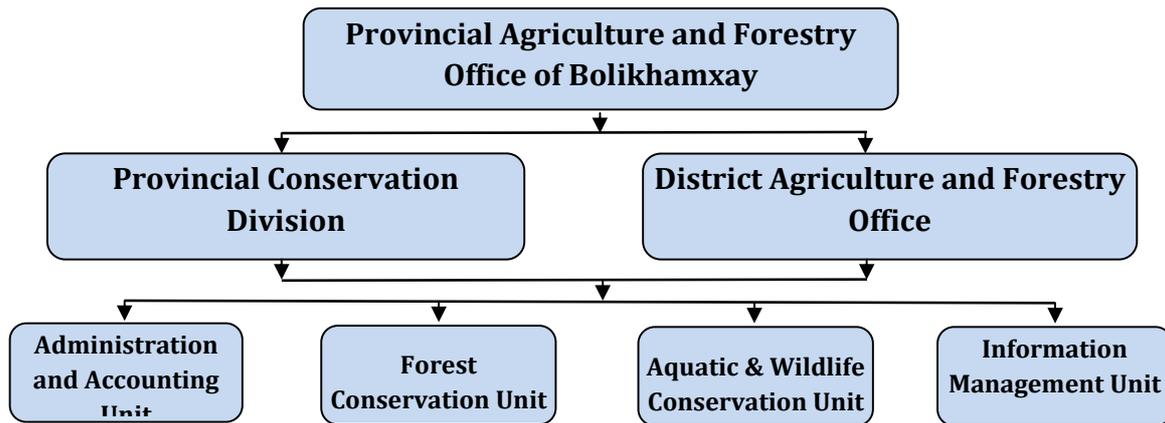
To meet these Phouchomvoy goals, the management team created conceptual model that described the situation and identified threats and issues that affect the Provincial Protected Areas to be in line with the 5th resolution of Bolikhamxay Provincial Party, 206 projects of Provincial Agriculture and Forestry Office and State Investment Plan for 2010 - 2015 and 6 priority projects on protected areas in Bolikhamxay Province has set the of objectives as following:

- 1) *increase capacity of district PA staffs and local villagers to make them able to do PA management and biodiversity conservation*
- 2) *Improve alternative village livelihood in and around the PA and promote building permanent occupation.*
- 3) *Encourage villagers in and around PA to involve in law and regulations enforcement in line with district policy on protected area management.*

3. Organizational Structure

The organizational structure of the Phou Chom Voy Provincial Protected Area Management Unit of a period started from 2011 to 2015.

3.1 Organizational Structure



3.2 Staffing

To accomplish the goals and objectives up to the 2015, PCV Management Unit has set up the 5 priority activities and staffing as following:

- Two persons from provincial protected area, the total of 10 persons per each.
- One person from local authority.
- 4 persons from district (DAFO), activities implementing should follow up or adopt the model of national protected area management at provincial level and conduct training before field works.

4. The Priority Activities

The Provincial Conservation Division will be performed as supervision of 4 units and 6 priority activities implementation to manage PCV PPA as following:

- (1) Extension and communities awareness
- (2) Livelihood development
- (3) Law enforcement and patrolling
- (4) Biodiversity monitoring
- (5) Ecotourism and
- (6) Increase districts and villagers capacity.

4.1 Extension and Awareness

Goal:

To raise communities awareness to enable them receives knowledge and understands about the significant of biodiversity in partnership with their livelihood by participation and to reach sustainable uses

Objectives:

- o Strengthen capacity of 2 districts existing outreach team by selection 2 staffs from each to enable them can design and implement conservation activities in their district
- o Enable villagers and students of 13 villages in and around the Phou Chom Voy Provincial Protected Area know the impacts of deforestation and wildlife trading to their livelihood present and future
- o Build capacity of villages' forester about the outreach and awareness in 13 villages in around protected area.

Action Plan of Extension and Awareness

No.	Target	Activity	Responsible	Timing	Estimate Budget (US \$)
1)	Strengthen capacity of staffs, districts and village forestry staffs	<ul style="list-style-type: none"> ○ Form staffs ○ Training ○ Monitoring ○ Evaluation ○ Lesson learned 	<ul style="list-style-type: none"> – DPO – DEO – DWUO – DAFO – VF 	2011-15	50,000
2)	Disseminate natural resources conservation, laws, regulations, maintenance NPA boundary markers and core zone signs	<ul style="list-style-type: none"> ○ Produce equipments (Posters, fables books, badges, billboards, certificates, t-shirt, dolls, no buy and sale wildlife signs) ○ Purchase outreach instruments (amplifier, speaker, microphone, etc) ○ Produce PA signs ○ Establish green cub ○ Train staffs and head of villages ○ Conduct outreach program at villages, schools, militia camps ○ Radio spots 	<ul style="list-style-type: none"> – LA – 13 schools – PCD – DAFO – DEO – DWUO – VF 	2012-15	50,000
3)	Outreach on core zone management and NPA boundary markers protection	<ul style="list-style-type: none"> ○ Produce equipments (posters, fables books, badges, billboards, certificates, t-shirt, dolls, no buy and sale wildlife signs) ○ Train staffs ○ Conduct outreach program at villages, schools, militia camps. ○ Distribute aquatic and wildlife law books ○ Radio and TV spots ○ Develop conservation manuals 	<ul style="list-style-type: none"> – DET – DEO – PCD – DAFO – LA – VF 	2012-15	50,000
Total					150,000

Remark: DPO = District Propaganda Office, DEO = District Education Office, DWUO = District Women Union Office, DAFO = District Agriculture and Forestry Office, VF = Village Forester, LA = Local Authority, PCU = Provincial Conservation Division, DET = District Extension Team

4.2. Village Development Program in around Phou Chom Voy PPA

Goal:

To improve communities livelihood in and surround the Phou Chom Voy Provincial Protected Area go along with management, designation and sustainable use of natural resources

Objectives:

- Build communities livelihood in and surround the Phou Chom Voy Provincial Protected Area to get better by the year 2015.
- Strengthen communities in and surround the Phou Chom Voy Provincial Protected Area to be effective in natural resources management and reduce extraction.

Action Plan of Village Development Program in around Phou Chom Voy PPA

No.	Target	Activity	Responsible	Timing	Estimate Budget (US \$)
1)	Manage use of NTFPs of potential villages in and surround the Phou Chom Voy Provincial Protected Area	<ul style="list-style-type: none"> – Feasibility study by communities participatory – Survey and designate forest – Modeling and develop regulation for utilization 	<ul style="list-style-type: none"> 🚧 Village 🚧 DAO 🚧 DAFO 🚧 DIO 🚧 LA 	2011-15	130,000
2)	Establish fish and frog conservation zone of potential villages in and surround the Phou Chom Voy Provincial Protected Area	<ul style="list-style-type: none"> – Survey and zoning – Design conceptual model and build regulation for management and protection 	<ul style="list-style-type: none"> 🚧 Village 🚧 DAO 🚧 DAFO 🚧 DIO 🚧 LA 	2012-15	65,000
3)	Promote weaving of potential villages in and surround the Phou Chom Voy Provincial Protected Area	<ul style="list-style-type: none"> – Expand marketing network and collaborate with sector concerned in supply raw materials – Improve technical production 	<ul style="list-style-type: none"> 🚧 Village 🚧 DAFO 🚧 DIO 	2011-15	40,000

4)	Develop agriculture production of potential villages in and surround the Phou Chom Voy Provincial Protected Area	<ul style="list-style-type: none"> – Improve rice growing technique and yield – Encourage planting industry crop – Promote domestic animal raising for sale 	<ul style="list-style-type: none">  Village  DAFO  DIO 		130,000
Total					365,000

Remark: DAO = District Administration Office, DIO = District Industrial Office, PCU = Provincial Conservation Division

4.3 Law Enforcement and Patrolling

Goal:

To prevent biodiversity encroachment in the Phou Chom Voy Provincial Protected Area by apply the law measurement and strengthen staffs capacity

Objectives:

- Build law enforcement network by enable communities to participate in protection of the Phou Chom Voy Provincial Protected Area and establish patrol team base 13 villages.
- Strengthen the district PA supervisors capacity by selection 3 people from each.
- Strengthen patrol team capacity of villages and districts to be effectiveness in law enforcement to reduce biodiversity threats in the Phou Chom Voy Provincial Protected Area.

Action Plan of Law Enforcement to protect natural resources of Phou Chom Voy Provincial Protected Area

No.	Target	Activity	Responsible	Timing	Estimate Budget (US \$)
1)	Build villages informant base network	<ul style="list-style-type: none"> – Form staffs – Training – Develop work plan – Implementing – Monitoring – Study tour. 	<ul style="list-style-type: none"> – VM – VG – VF – LA 	2011 - 15	65,000

2)	Strengthen staffs capacity in law and regulations enforcement	<ul style="list-style-type: none"> – Form staffs – Training – Develop work plan – Implementing – Monitoring and Evaluation – Study tour. 	<ul style="list-style-type: none"> – DM – District guard – DAFO – DAO – DCO 	2012 - 15	40,000
3)	Reduce threats in and around Phou Chom Voy Provincial Protected Area	<ul style="list-style-type: none"> – Set up 4 road check points around the NPA. – Build 4 forest substations 	<ul style="list-style-type: none"> – PCU – Military – DAFO – Village – LA 	2011 - 15	200,000
Total					305,000

Remark: VM = Village Militia, VG = Village Guard, DM = District Military, DCO = District Court Office, DAFO = District Agriculture and Forestry Office

4.4. Biodiversity Monitoring and Research

Goal:

To conduct research and monitoring into importance ecosystems and species of plants and animals within the PCV PPA to provide accurate information to inform and guide management of biodiversity of the PCVPPA.

Objectives:

- By the year 2015 capacity for PA staff to collect, manage, analyze and report on monitoring data that informs on management decisions
- By the year 2015 detailed information on the status of ecosystems, land use change, wildlife and plants within and around the the PCVPPA (In particularly, to recover Saola habitat).
- By the year 2015 the Research and training centre is recognized as a center for biodiversity research within Lao

Action Plan of Biodiversity Monitoring and Research of PCV PPA

No.	Target	Activity	Responsible	Timing	Estimate Budget (US \$)
1)	Build staffs capacity	<ul style="list-style-type: none"> – Form staffs – Training – Study tour – Support scholarship 	<ul style="list-style-type: none">  PCD  PAFC  NUoL  DAFO 	2011-15	40,000
2)	Provide accurate information of biodiversity within the PCV PPA	<ul style="list-style-type: none"> – Identify research zone – Prioritize research and experiment – Data analysis – Evaluation 	<ul style="list-style-type: none">  PCD  PAFC  NUoL  DAFO  DFRC 	2012-15	160,000
Total					200,000

Remark: PCD = Provincial Conservation Division, PAFC = Provincial Agriculture and Forestry College of Bolikhamxay, NUoL = National University of Laos, DAFO = District Agriculture and Forestry Office, DFRC = Division of Forest Resources Conservation (Department of Forestry)

4.5 Ecotourism Development

Goal:

To develop ecotourism go along with conservation by use the existing strengthen to enable communities and NPA management get more benefit

Objectives:

- By the year 2015, develop ecotourism within PCV PPA to be good site and attractive
- By the year 2015, create income for local communities by ecotourism involvement to help sustainable of PCV PPA management.

Action Plan of Ecotourism Development of PCV PPA

No.	Target	Activity	Responsible	Timing	Estimate Budget (US \$)
1)	Create view point of the top of PCV PPA (Trekking, Forest camping, Visiting waterfall, Boat rafting, Zip line)	<ul style="list-style-type: none"> – Feasibly study – Approve for open tourism site – Improve recreation and trail. – Identify tourism site – Build regulation and modeling for tourism – Open tourism service 	<ul style="list-style-type: none"> + Village + DAO + DTO + PCD + DAFO 	2011-15	150,000
Total					150,000

Remark: DAO = District Administration Office; DTO = District Tourism Office; PCD = Provincial Conservation Division; DAFO = District Agriculture and Forestry Office.

The expected donors to support this management plan or activities: Theun Hinboun Hydro Power Company (THPC); Lao - Luxemburg Development Project in Bolikhamxay Province (LUX); Lao Environment Protection Fund or Lao Environment and Social Fund (LEnS); Department of Forestry (DoF); Wildlife Conservation Society Lao Program (WCS); RARE and Critical Ecosystem Partnership Fund (CEFP) and so on.

5. Estimated Budgeting and Timeline to Implement PCV PPA Management Plan

The budgeting of this management base on the experience of real activities implemented of PCV PPA preservation.

No.	Target	Activity	Cost / 5 year (US\$)	Year 1	Year 2	Year 3	Year 4	Year 5	Average (US\$)
I. Extension and Awareness									
1)	Strengthen capacity of staffs, districts and village forestry staffs	<ul style="list-style-type: none"> ○ Form staffs ○ Training ○ Monitoring ○ Evaluation ○ Lesson learned 	50,000	10,000	10,000	10,000	10,000	10,000	10,000
2)	Disseminate natural resources conservation, laws, regulations, maintenance PPA boundary markers and core zone signs	<ul style="list-style-type: none"> ○ Produce equipments (Posters, fables books, badges, billboards, certificates, t-shirt, dolls, no buy and sale wildlife signs) ○ Purchase outreach instruments (amplifier, speaker, microphone, etc) ○ Produce PA signs ○ Establish green cub ○ Train staffs and head of villages ○ Conduct outreach program at villages, schools, militia camps 	50,000	10,000	10,000	10,000	10,000	10,000	10,000

		○ Radio spots							
3)	Outreach on core zone management and PPA boundary markers protection	<ul style="list-style-type: none"> ○ Produce equipments (posters, fables books, badges, billboards, certificates, t-shirt, dolls, no buy and sale wildlife signs) ○ Train staffs ○ Conduct outreach program at villages, schools, militia camps. ○ Distribute aquatic and wildlife law books ○ Radio and TV spots ○ Develop conservation manuals 	50,000	10,000	10,000	10,000	10,000	10,000	10,000
Subtotal (I)			150,000	30,000	30,000	30,000	30,000	30,000	30,000
II. Village Development Program in around Phou Chom Voy PPA									
1)	Manage use of NTFPs of potential villages in and surround the Phou Chom Voy Provincial Protected Area	<ul style="list-style-type: none"> – Feasibility study by communities participatory – Survey and designate forest – Modeling and develop regulation for utilization 	130,000	26,000	26,000	26,000	26,000	26,000	26,000
2)	Establish fish and frog	– Survey and zoning	65,000	13,000	13,000	13,000	13,000	13,000	13,000

	conservation zone of potential villages in and surround the Phou Chom Voy Provincial Protected Area	<ul style="list-style-type: none"> - Design conceptual model and build regulation for management and protection 							
3)	Promote weaving of potential villages in and surround the Phou Chom Voy Provincial Protected Area	<ul style="list-style-type: none"> - Expand marketing network and collaborate with sector concerned in supply raw materials - Improve technical production 	40,000	8,000	8,000	8,000	8,000	8,000	8,000
4)	Develop agriculture production of potential villages in and surround the Phou Chom Voy Provincial Protected Area	<ul style="list-style-type: none"> - Improve rice growing technique and yield - Encourage planting industry crop - Promote domestic animal raising for sale 	130,000	26,000	26,000	26,000	26,000	26,000	26,000
Subtotal (II)			365,000	73,000	73,000	73,000	73,000	73,000	73,000
III.	Law Enforcement and Patrolling								
1)	Build villages informant base network	<ul style="list-style-type: none"> - Form staffs - Training - Develop work plan - Implementing - Monitoring - Study tour. 	65,000	13,000	13,000	13,000	13,000	13,000	13,000
2)	Strengthen staffs capacity in law and regulations	<ul style="list-style-type: none"> - Form staffs - Training - Develop work plan 	40,000	8,000	8,000	8,000	8,000	8,000	8,000

	enforcement	<ul style="list-style-type: none"> – Implementing – Monitoring and Evaluation – Study tour. 							
3)	Reduce threats in and around Phou Chom Voy Provincial Protected Area	<ul style="list-style-type: none"> – Set up 4 road check points around the NPA. – Build 4 forest substations 	200,000	40,000	40,000	40,000	40,000	40,000	40,000
Subtotal (III)			305,000	61,000	61,000	61,000	61,000	61,000	61,000
IV.	Biodiversity Monitoring and Research								
1)	Build staffs capacity	<ul style="list-style-type: none"> – Form staffs – Training – Study tour – Support scholarship 	40,000	8,000	8,000	8,000	8,000	8,000	8,000
2)	Provide accurate information of biodiversity within the PCV PPA	<ul style="list-style-type: none"> – Identify research zone – Prioritize research and experiment – Data analysis – Evaluation 	160,000	32,000	32,000	32,000	32,000	32,000	32,000
Subtotal (IV)			200,000	40,000	40,000	40,000	40,000	40,000	40,000
V.	Ecotourism Development								
1)	Create view point of the top of PCV PPA (Trekking, Forest	<ul style="list-style-type: none"> – Feasibly study – Approve for open tourism site 	150,000	30,000	30,000	30,000	30,000	30,000	30,000

	camping, Visiting waterfall, Boat rafting, Zip line)	<ul style="list-style-type: none"> - Improve recreation and trail. - Identify tourism site - Build regulation and modeling for tourism - Open tourism service 							
	Subtotal (V)		150,000	30,000	30,000	30,000	30,000	30,000	30,000
	Grand total (I + II + III + IV + V)		1,170,000	468,000	468,000	468,000	468,000	468,000	468,000

Reference:

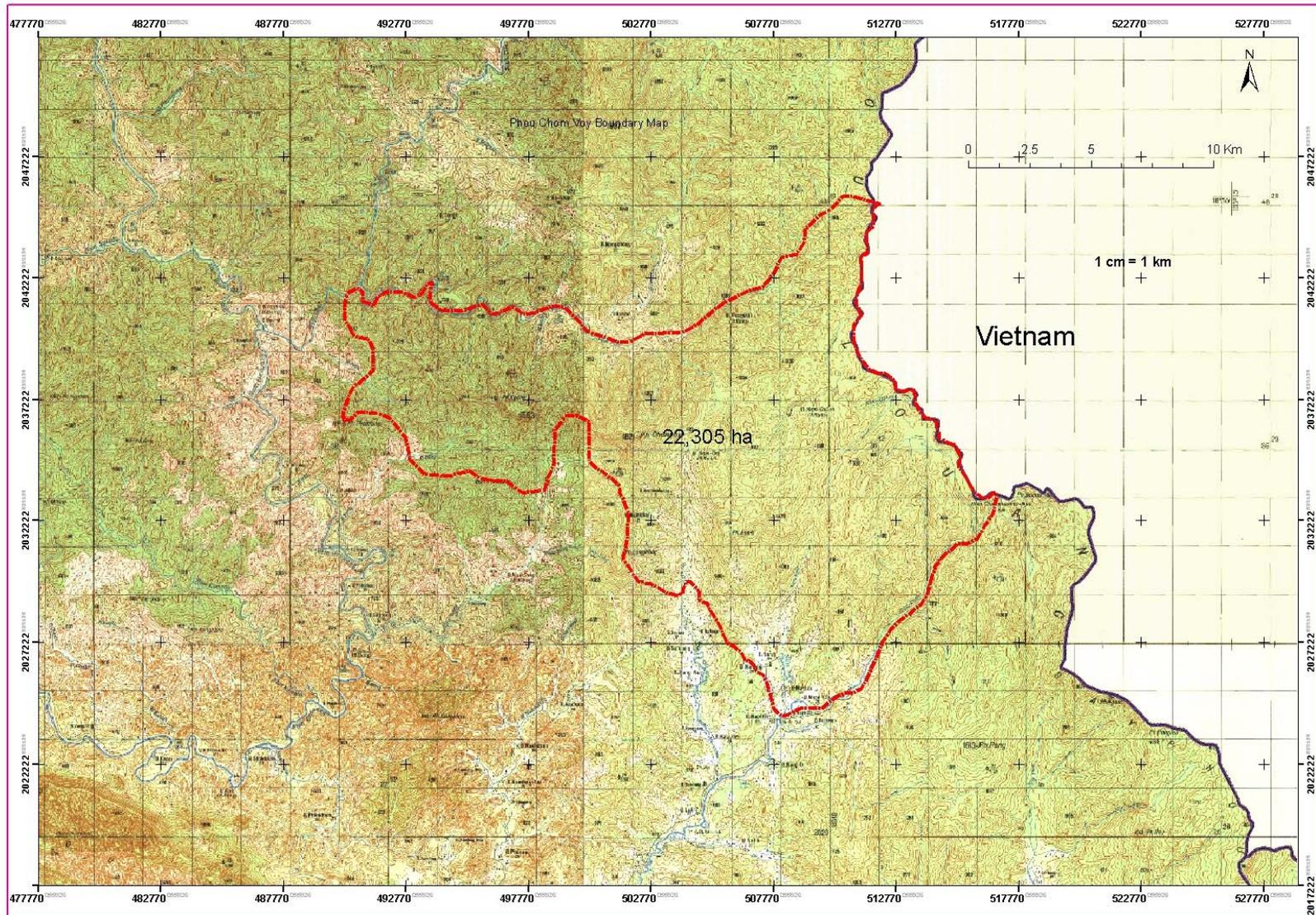
Governor of Bolikhamxay Province, Provincial Socio-economic Development Strategy up to 2010 and Development Action Plan for 2006 - 2010, issue ref. 47/BLX, dated February 7th, 2006.

Provincial Conservation Division, Namkading National Protected Area Management Plan for 2010 - 2015, issue ref. 0157 / DoF, dated January 1th, 2010.

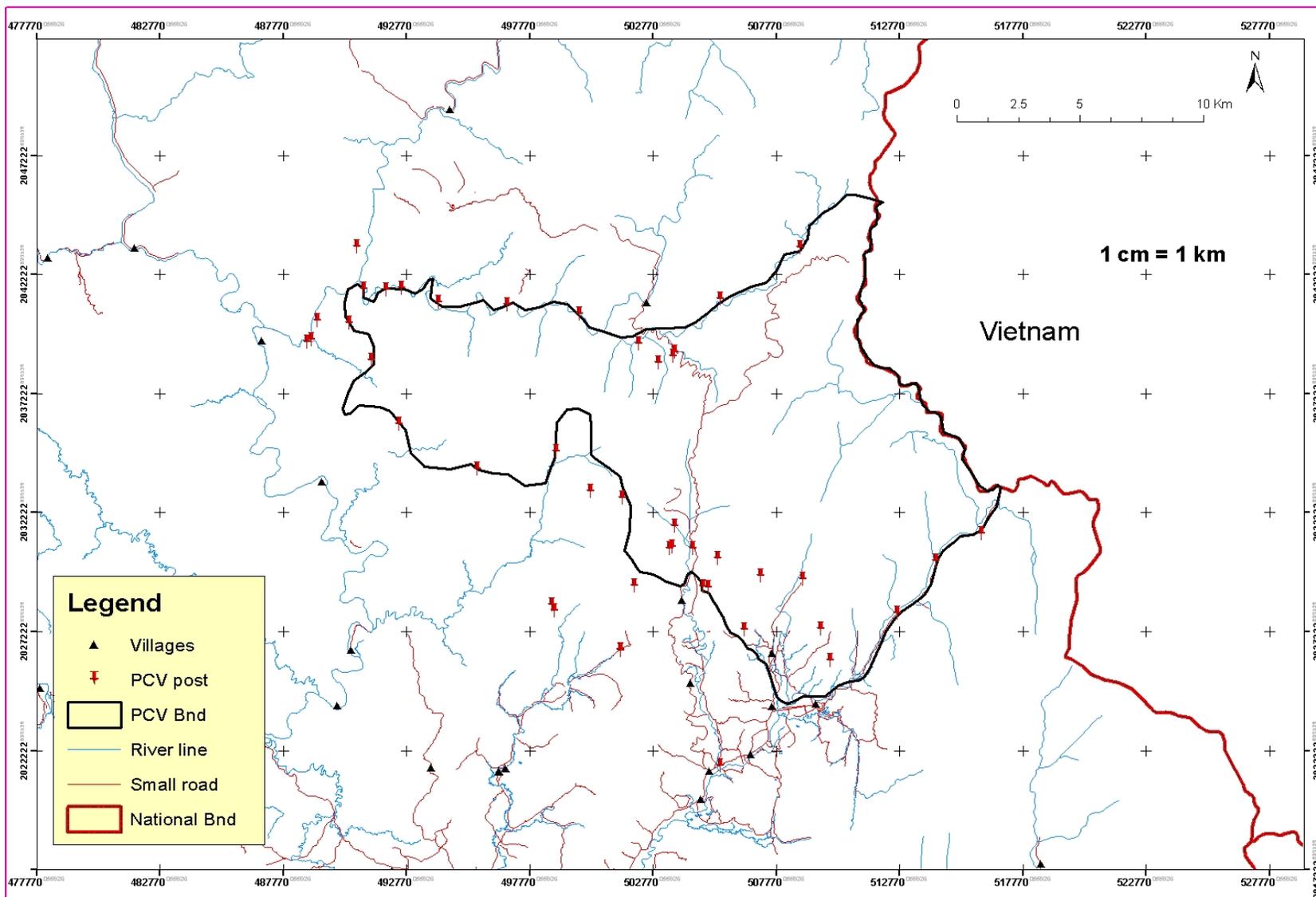
Spense K. and Somvongsa C. (2010). Draft training report on protected area management in 4 provincial protected areas, Wildlife Conservation Society, Vientiane.

Appendices

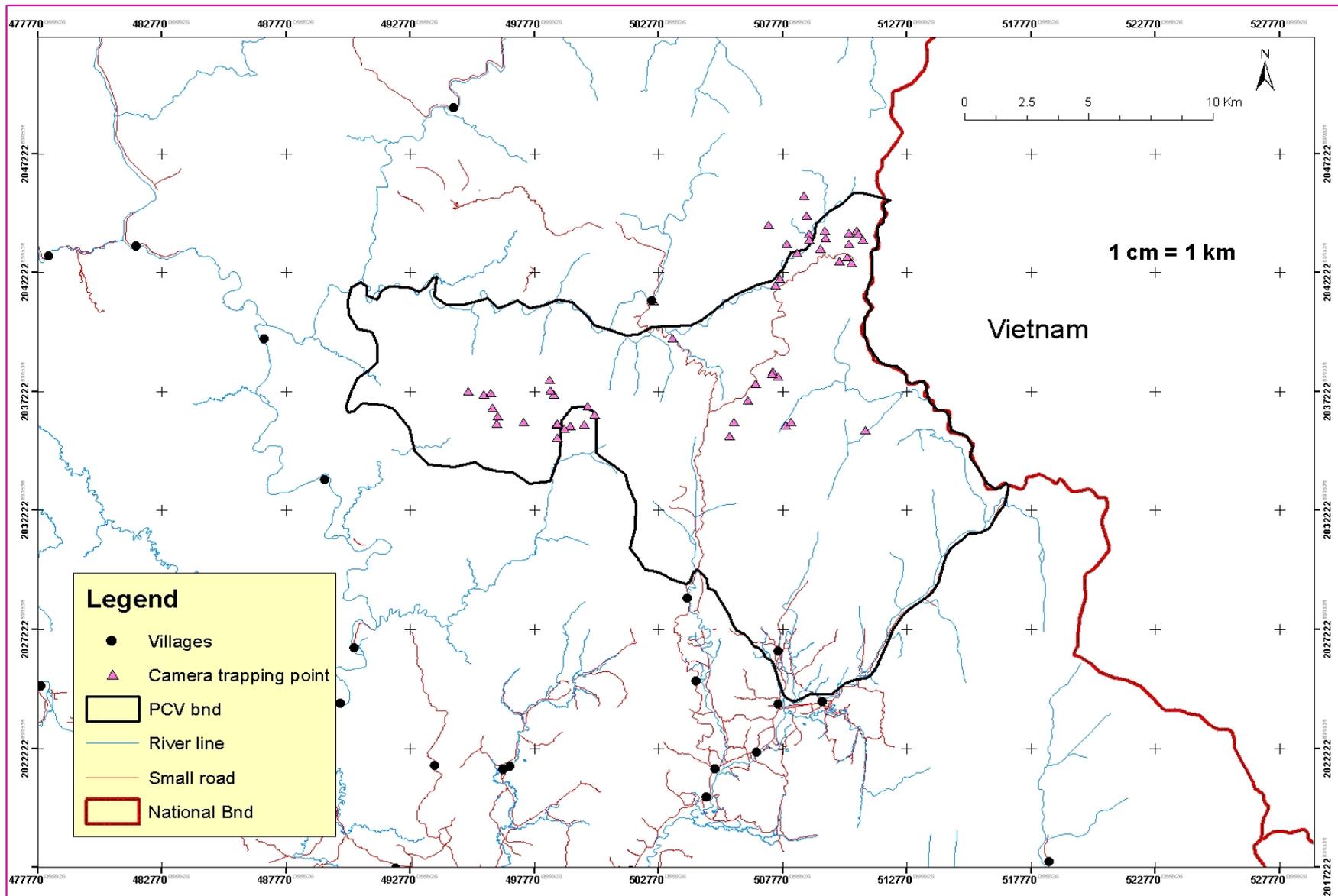
Annex 1: Phou Chom Voy PPA Boundary Map



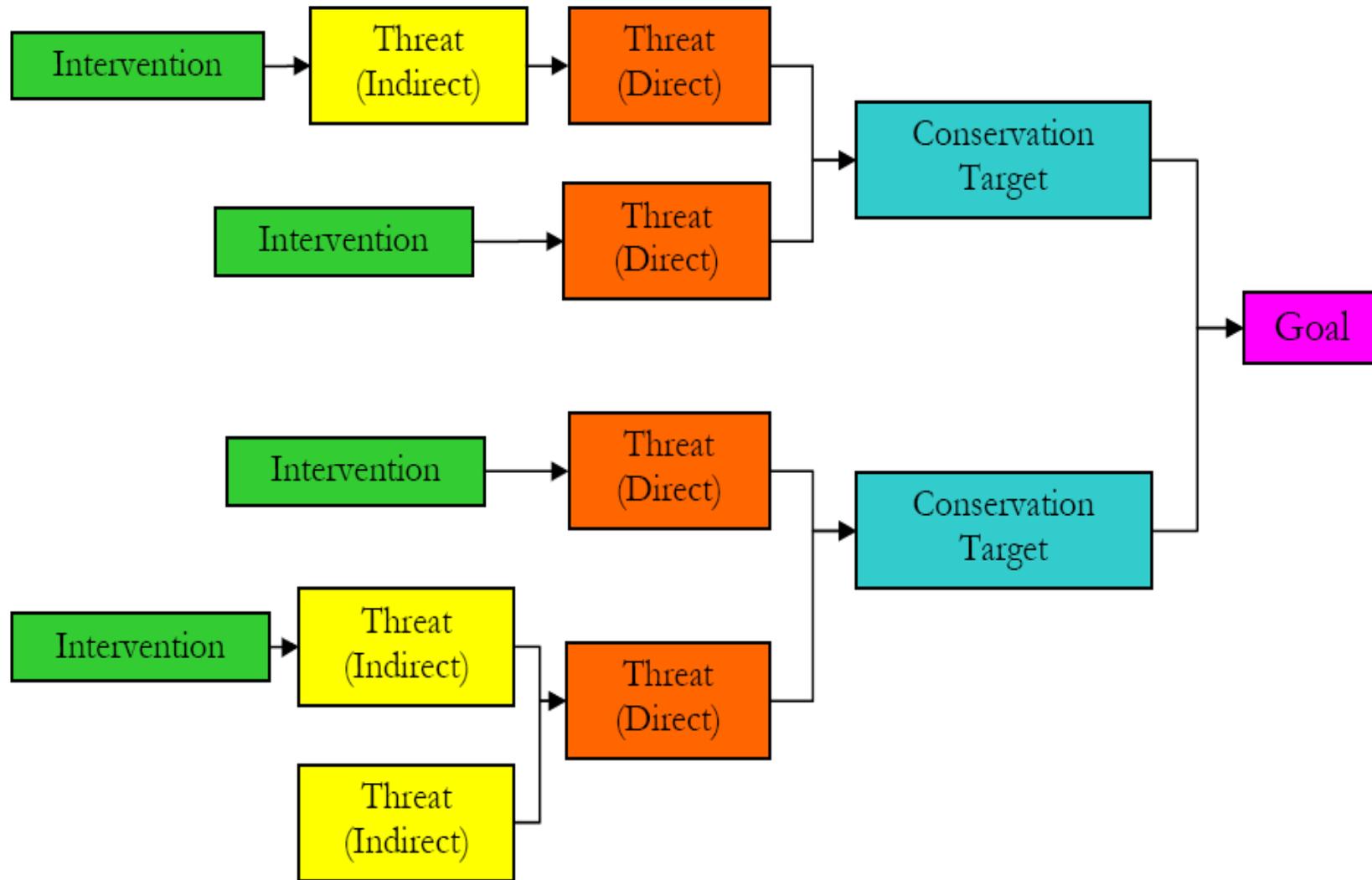
Phou Chom Voy PPA boundary marker posts



Phou Chom Voy PPA camera trapping point

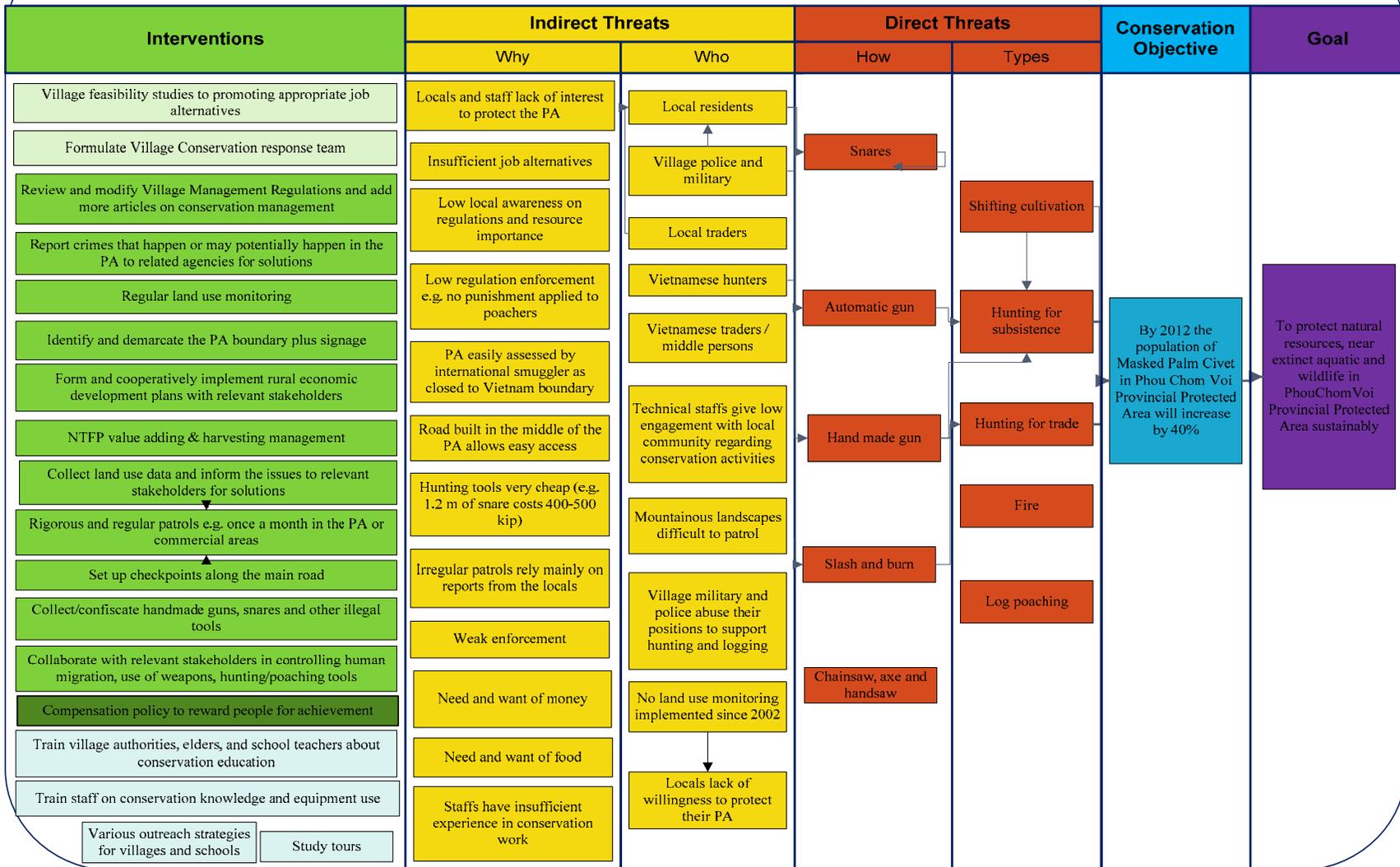


Annex 2: Conception modelling

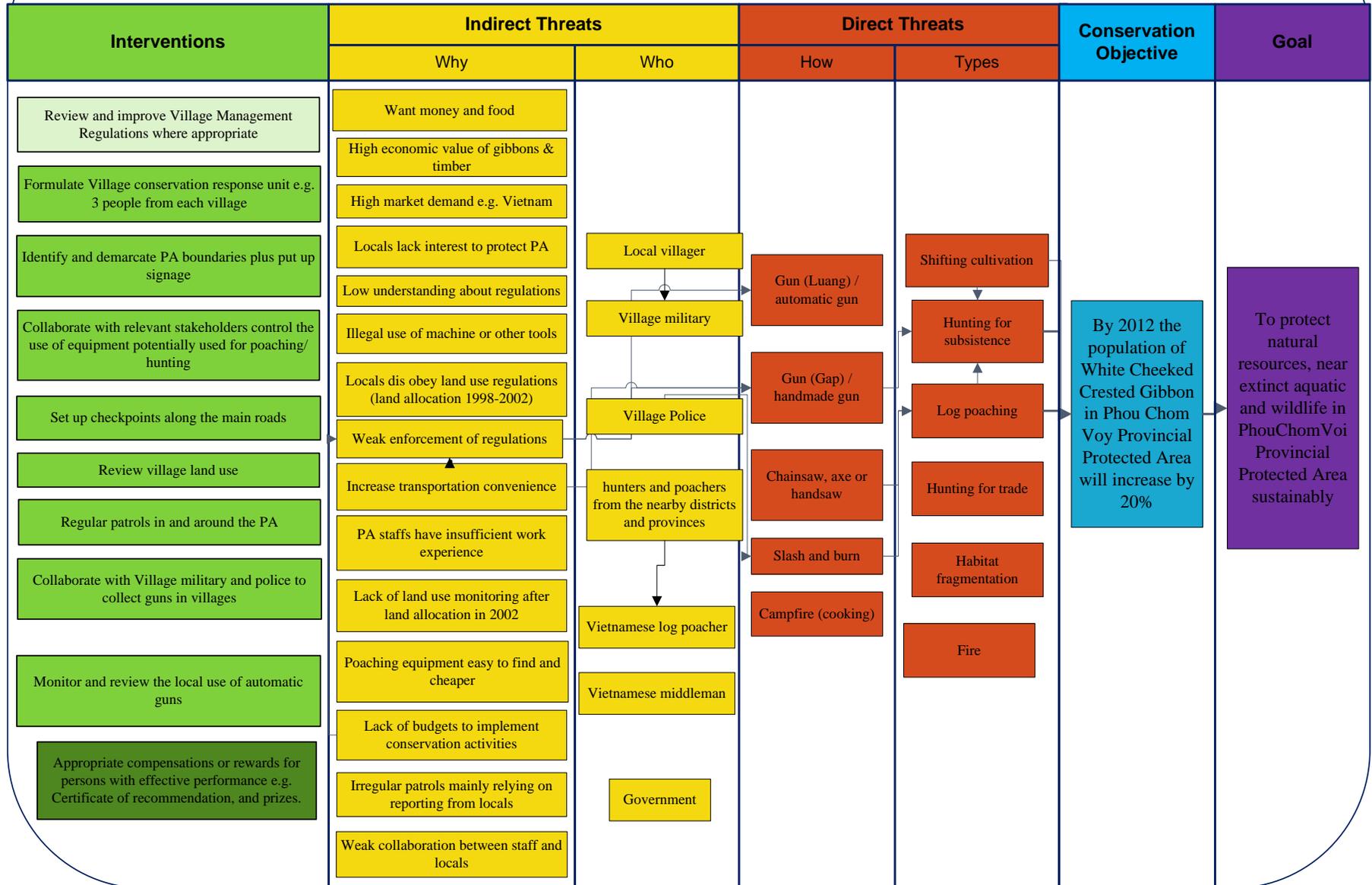


Conceptual models for PhouChomVoy indicator species

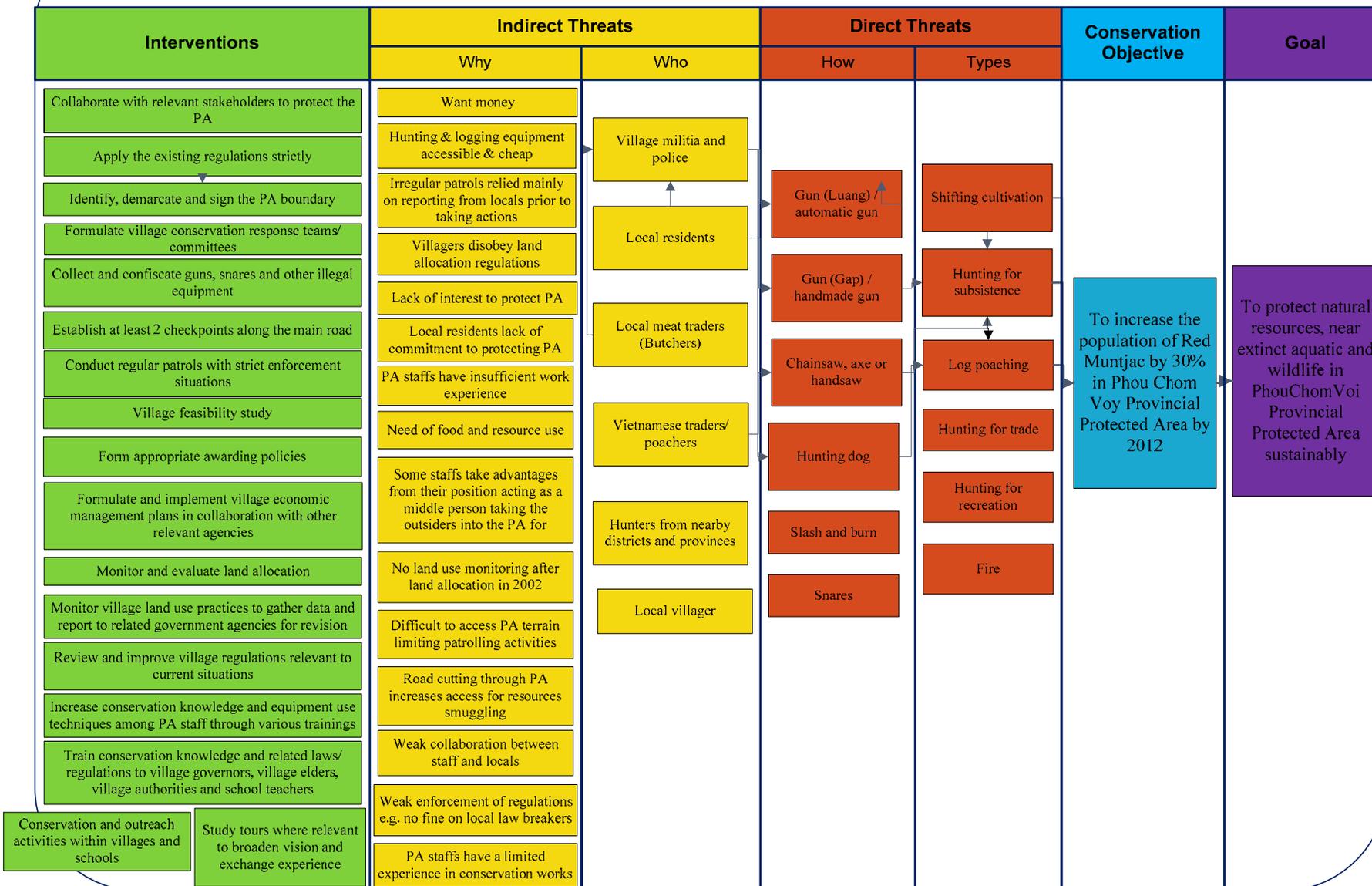
Phou Chom Voi Provincial Protected Area Conceptual Model – Palm Civet



Phou Chom Voi Provincial Protected Area Conceptual Model – White Cheeked Crested Gibbon



Phou Chom Voi Provincial Protected Area Conceptual Model – Redmunt- Eng



Annex 3. Species list for PhouChomVoy

No.	Scientific name	Lao name	Common name	Indicator species	Lao listed	Global status	Laos status	CITES
1	<i>Pseudorax ngetingensis</i>	ເສົາຫລາ	Saola		✓	Critical endanger	Critical endanger	I
2	<i>Megamutiacus vuquangensis</i>	ກວາງເຂົາໃຫຍ່	large deer		✓	Globally Threatened - Vulnerable;	At Risk in Lao PDR	I
3	<i>Artonyx collaris</i>	ໝູ່ປ່າ	wild pigs		✓		Near-threatened	II
4	<i>Hylobates gabriellae</i>	ທະນີແກ້ມຂາວ	gibbon	✓	✓	Threatened - Vulnerable;	Potentially At Risk in Lao PDR	I
5	<i>Pygathrix nemacus</i>	ຂາແດງ			✓	Threatened - Vulnerable;	Potentially At Risk in Lao PDR	I
6	<i>Bos gaurus</i>	ເໝືອຍ			✓	Threatened - Vulnerable;	Potentially At Risk in Lao PDR	I
7	<i>Naemorhedus sumatraensis</i>	ເຫງິນ	Civet	✓	✓		Near-threatened	II
8	<i>Muntiacus vuquangensis</i>	ຟານເຂົາໃຫຍ່	Large-antlered Muntjac		✓		Near-threatened	I
9	<i>Naemorhedus</i>	ເຍືອງຜາ	Southern		✓	Threatened -	Potentially At Risk	I

	<i>sumatraensis</i>		Serow			Vulnerable;	in Lao PDR	
10	<i>Macaca sp.</i>	ລິງຫຼາຍຊະນິດ	Monkeys		✓			II
11	<i>Lepus sp.</i>	ກະຕ່າຍສາຍ ເສືອ	Annamite timm insi		✓			
12	<i>Herpestes sp.</i>	ຈອນຟອນ ທຸກຊະນິດ	All Mongoose Species		✓			III
13	<i>Callosciurus sp.</i>	ກະຮອກຫຼາຍຊະນິດ	Squirrel		✓			III
14	<i>Lophura nycthemera</i>	ໄກ່ຂວາຫຼວງ (ໄກ່ ຂວາຫຼັງຂາວ)	Silver Pheasant		✓			II
15	<i>Hystrix brachyura</i>	ເໝັນ	Porcupine		✓	Globally Near- threatened		
16		ນົກຊະນິດຕ່າງໆ	Bird		✓			
17	<i>Muntiacus vuquangensis</i>	ຟານເຂົາໃຫຍ່	Large- antlered Muntjac		✓	Globally Near- threatened		I
18	<i>Nycticebus sp.</i>	ລິງລົມ ທຸກຊະນິດ	All Slow Loris Species		✓			I

19	<i>Viverra megaspila</i>	ເຫງິນຫາງກ່ານ	Large Spotted Civet		✓			
20	<i>Nesolagus sp.</i>	ກະຕ່າຍລາຍເສື້ອ	Annamite striped rabbit		✓			
21	<i>Cuora trifasciata</i>	ເຕົ້າຄຳ	Chinese three striped Box Turtle		✓			
22	<i>Pavo muticus</i>	ນົກຍຸງ	Green Peafowl		✓	Globally Near-threatened		II

Annex 4: The animals' pictures from automatic camera trapping



The Phou Chom Voy Provincial Protected Area boundary demarcation post

