

Kingdom of Cambodia  
Nation Religion King



Management Plan  
Phnom Aural Wildlife Sanctuary  
2022 - 2031



2022

## MESSAGES

The protected areas of the Kingdom of Cambodia are home to a variety of biodiversity and natural resources; including nature-based ecotourism sites, rocky areas, pastures, genetic resources, plants, forests, wildlife, and forest and non-timber forest products to enhance the livelihoods of the local people and sustainable water sources for human consumptions, irrigating agricultural activities and other fields as well as contributing to sustainable development. Protected areas play a vital role in biodiversity conservation; especially the rare, endangered, and almost globally extinct flora and fauna species. The protected area conservation, therefore, provides long-term benefits to the ecosystem and contributes to social, economic, environmental, and cultural development.

The Ministry of Environment with the General Directorate of Natural Protected Areas being its secretariate has been promoting the implementation of its mission, which contributes to strengthening and expanding the social, economic, and cultural achievements, political security, and environmental sectors such as institutional modernization and modernized administration, decentralization and deconcentration policies, natural resource management and biodiversity conservation, policy development, strategic plans, legal documents and innovations on the environment, social and environmental impact assessment, environment diplomacy, and environment-related security. For natural resource management and biodiversity conservation purposes, 76 protected areas have been designated in the Kingdom of Cambodia, including 3 biodiversity conservation corridors; namely the north-eastern corridor, the eastern corridor, and the Cardamom corridor. This becomes the protected area system, covering 7.2 million hectares of land or 41% of the total territory of the country. It is imperative that this PA system needs to be managed in harmony between conservation and national development effectively and sustainably.

The 10-Year Phnom Aural Wildlife Sanctuary (PAWS) Management Plan (2022-2031) is, therefore, important to inform the more effective leadership, management, and actions of this PA and relevant competent authorities to carry out effective management activities; promote values, ecosystem functions, environmental balance; contribute to the betterment of livelihoods of the community people; support the sustainability of economic development at the national and sub-national levels as well as contribute to the mitigation of climate change in line with National Protected Area Strategic Management Plan 2017-2031, Law on Protected Areas (2008) and policies of the Royal Government of Cambodia under the wise leadership of **Samdech Akka Moha Sena Padei Techo Hun Sen Samach Akka Seina Pakdeiy Hun Sen, Prime Minister of the Kingdom of Cambodia**.

In this context, I am, on behalf of the Ministry of Environment, honored and happy to support and launch the 10-Year Phnom Aural Management Plans (2022-2031).

Once again, I would like to express my sincere thanks and appreciation to H.E. Excellencies, officials of the Ministry of Environment and representatives of line ministries, sub-national administrations, national and international organizations, private sector, local communities and stakeholders for involvement and good cooperation in the development of this valued document. I hope that this good cooperation will continue for the successful implementation of this management plan for the management, conservation, and use of natural resources and biodiversity.

Phnom Penh, .....

Minister

**SAY Samal**

## PREFACE

Phnom Aural Wildlife Sanctuary (PAWS) was designated by the Royal Decree, dated 1 November 1993 and situated in geographic provinces of Kampong Chhnang, Kampong Speu, and Pursat; covering 255,036 hectares of land and the highest mountain of 1813 meters in Cambodia. PAWS Zoning and Management Plan are a mechanism to guide and assist in effective and sufficient management of this PA and realize to realize the objectives and goals of the National Protected Area Strategic Management Plan (2017-2031) in an effective and sufficient manner. In this regard, I strongly hope that all stakeholders will continue to work together with the GDNPA of the Ministry of Environment to manage the PAWS natural resources effectively and sustainably.

With such outstanding values and rich natural resources within PAWS, it is facing challenges and threats such as land encroachments, forest clearing, illegal land sales, illegal settlements, wildlife trapping and hunting, logging, causing forest fires, and development of charcoal kilns, etc. In the face of such situations, effective management of the PA is needed to minimize the loss and degradation of biological resources, conservation of the ecosystem sustain the values of the PAWS, and contribute to the improvement of livelihoods of the local communities. To this end, the 10-Year PAWS Management Plans (2022-2031) is initiated and developed by GDNPA and financed by the Royal Government of Cambodia, Cambodia Sustainable Landscape and Ecotourism Project, and supported and cooperated by the administrations at the national and sub-national levels, line ministries, development partners, local communities and stakeholders.

On behalf of the General Directorate of Natural Protected Areas (GDNPA) and PAWS Management Plan Working Group, I would like to express my sincere respect and gratitude to **H.E. SAY Samal, Minister for Environment** for his constant support and guidance for all of us on development of this management plan. I wish to express thanks to all leaders, and colleagues of GDNPA and officials at all levels of the Department of Terrestrial Protected Areas Conservation of Southern Tonlesap, Ministry of Environment; ministries, institutions; sub-national administration; national and international organizations; local communities; and stakeholders who had spent their time to get involved and offer good cooperation in the development of this management plan.

Phnom Penh, .....

Director General of GDNPA

**KIM Nong**

## **Acknowledgement**

The Ministry of Environment would like to express its sincere thanks to the ministries/institutions at the national and sub-national levels, development partners, NGOs, private sector, and all relevant stakeholders for their valuable and useful inputs for zoning and management plan for this PAWS under the facilitation and coordination of the chair of the task force whose compositions and roles and duties are as follows:

### **KINGDOM OF CAMBODIA NATION REGION KING**

MINISTRY OF ENVIRONMENT

No. 003 S.S.Ro/MoE

#### **DECISION ON ESTABLISHMENT OF WORKING GROUP FOR “ZONING AND MANAGEMENT PLANS” FOR PHNOM SAMKOS WILDLIFE SANCTUARY IN THE GEOGRAPHIC AREAS OF KOH KONG, BATTAMBANG AND PURSAT PROVINCES**

Pursuant to:

- The Constitution of the Kingdom of Cambodia;
- The Royal Decree No. NS/RKT/0918/925; dated 06 September 2018 on the Appointment of the Royal Government of Cambodia;
- The Royal Decree No. NS/RKT/0320/421; dated 30 March 2020 on the Appointment and Composition Adjustment of the Royal Government of Cambodia;
- The Royal Decree No. NS/RKT/0618/012; dated 28 June 2018; promulgating Organisation and Functioning of the Cabinet of the Council of Ministers;
- The Royal Decree; dated 1 November 1993 on Law on Protected Areas;
- The Royal Decree No. NS/RKT/0208/007; dated 15 February 2008; promulgating the Law on Protected Areas;
- The Royal Decree No. NS/RKT/0196/21; dated 24 January 1996; promulgating the Establishment of the Ministry of Environment;
- The Royal Decree No. NS/RKT/1296/36; dated 24 December 1996; promulgating the Law on Environment Protection and Natural Resource Management;
- The Royal Decree No. NS/RKT/0801/14; dated 30 August 2001; promulgating the Law on Land;
- The Royal Decree No. NS/RKT/0196/13; dated 24 January 1996; promulgating the Law on Organisation and Functioning of the Ministry of Agriculture, Forestry and Fisheries;
- The Royal Decree No. NS/RKT/0802/016; dated 31 August 2002; promulgating the Law on Forestry;
- The Royal Decree No. 135 OrNPro.BK; dated 05 July 2016 on Organisation and Functioning of the Ministry of Environment;
- The Sub-Decree No. 17 OrNkr/BK, dated 07 April 2000 on the Organisation and Functioning of the Ministry of Agriculture, Forestry and Fisheries;
- The Sub-Decree No. 118 OrNkr/BK, dated 07 October 2005 on Management of State Land;
- The Sub-Decree No. 038 OrNkr/BK, dated 07 October 2016 on Transference of Rights to General Directorate of Administration of Nature Protection and Conservation to Decide the Proposal for Natural Resource Study in the Protected Areas;
- Prokas No. 556 BroK MoE; dated 29 December 2017 on Application of the Guideline on Zoning with the Protected Areas of the Ministry of Environment;
- Prokas No. 367 BroK MoE; dated 25 October 2018 on Application of the Technical Guideline on Management Plans within Protected Areas of the Ministry of Environment;
- The Notification No. 650, SchorN.SR; dated 03 July 2020 of the Office of Council of Ministers;
- The Notification No. 1963, SchorN; dated 08 July 2020 of the Ministry of Interior; and
- Necessity of the Ministry of Environment

## Decide

### Article 1

A Working Group on “Alienation, Zoning and Management Plan Development” for Phnom Aural Wildlife Sanctuary within the geographic provinces of Kampong Speu, Kampong Chhnang, and Pursat with the following composition:

1.	H.E. KIM Nong	Director General of General Directorate of Natural Protected Areas (GDNPA)	Chair
2	H.E. SOKH Phea	Deputy Governor of Kampong Speu	Deputy chair
3	H.E. BUN Sophy	Deputy Governor of Kampong Chhnang Province	Deputy chair
4	Mr. KHOV Rida	Deputy Governor of Pursat Province	Deputy chair
5	Mr. LOEUN Kesaro	Deputy DG of GDNPA	Deputy chair
6	Mr. HONG Daravuth	Department Director of Terrestrial Protected Areas Conservation of Southern Tonlesap/GDNPA	Permanent deputy chair
7	Mr. KONG Kimsreng	Department Director of Terrestrial Protected Areas Conservation of Northern Tonlesap/GDNPA	Chief of component 1.2
8	Mr. EAR Sokha	Department Director of Inspection and Law Enforcement	Member
9	Mr. LENG Chivin	Department Director of Geographic Information Services/GDEKI	Member
10	Mr. CHHIN Nith	Acting Director of the Biodiversity Department of GSSD	Member
11	Mr. ROS Chor	Department Director of Local Livelihoods/GDLC	Member
12	Mr. KHUT Osaphea	Chief of Provincial Administration Hall of Pursat	Member
13	Mr. KEO Kuchsey	Chief of Provincial Administration Hall of Kampong Speu	Member
14	Mr. BUN Sambath	Chief of Intersectoral Office of Provincial Hall of Kampong Speu#	Member
15	Mr. VANN Bunthat	Chief of Intersectoral Office of Provincial Hall of Kampong Chhnang	Member
16	Mr. OM Maktheary	Director of PDoE of Kampong Speu	Member
17	Mr. KONG Puthira	Director of PDoE of Pursat	Member
18.	Mr. Man Phalla	Director of PDoE of Kampong Chhnang	Member
19.	Mr. CHHIENG Tola	Director of PDAFF of Kampong Speu	Member
20	Mr. SAM Khim	Director of PDoT of Pursat	Member
21	Mr. TAP Malay	Provincial Department of Land Management, Urbanization, Construction and Cadastre of Kampong Speu	Member
22	Mr. ON Sathea	Provincial Department of Land Management, Urbanization, Construction and Cadastre of Pursat	Member
23.	Mr. LY Sophea	Provincial Department of Land Management, Urbanization, Construction and Cadastre of Kampong Chhnang	Member
24	Mr. EAR Dam	Provincial Department of Rural Development of Kampong Speu	Member
25	Mr. THIM Sotheara	Provincial Department of Rural Development of Pursat	Member
26.	Mr. CHIN Ratha	Provincial Department of Rural Development of Kampong Chhnang	Member
27.	Mr. SENG Ratanak	Deputy Department Director of Terrestrial Protected Areas Conservation of Southern Tonlesap/GDPA	Member
28.	Mrs. HOUR Chakriya	Office chief of the Department of Terrestrial Protected Areas Conservation of Southern Tonlesap/GDPA	Member
29.	Miss MOM Sary	Deputy chief of Deputy Chief of Department of Local Livelihood and Social Safeguard Focal Point	Member
30.	Mr. SOPHA Sokhunarung	An official of the Department of Natural Heritage and Focal Point in charge of Indigenous People	Member
31.	Mr. NOV Nak	Deputy Director of PDoE of Kampong Speu	Member
32.	Mr. ENG Raksmeay	Deputy Director of PDoE of Pursat	Member
33.	Mr. LAENG Samath	Deputy Director of PDoE of Kampong Chhnang	Member

34.	Mr. MUONG Thy	Governor of Aural District, Kampong Speu	Member
35.	Mr. KEAV Leangkea	Governor of Thpong District, Kampong Speu	Member
36.	Mr. SOU Sahong	Governor of Kravanh District, Pursat	Member
37.	Mr. LIV Senghoem	Governor of Krakor District, Pursat	Member
38.	Mr. SOKH Sothy	Acting Governor of Toek Pos District, Kampong Chhnang	Member
39.	Mr. KHIM Sokhpich	Chief of Phnom Aural WS Office, PDoE of Pursat	Member
40.	Mr. CHUON Samol	Chief of Phnom Aural WS Office, PDoE of Kampong Chhnang	Member
41.	Mr. HUL Mara	Chief of Phnom Aural WS Office, PDoE of Kampong Speu	Member
42.	Mr. POV Ra	Office Chief of Land Management, Urbanization, Construction and Cadastre, Thpong District, Kampong Speu	Member
43.	Mr. VANN Chheng Orn	Office Chief of Land Management, Urbanization, Construction and Cadastre, Aural District, Kampong Speu	Member
44.	Mr. TEP Naem	Chief of Tropeang Chor Commune, Kampong Speu	Member
45.	Mr. TUON Phav	Chief of Ormleang Commune, Kampong Speu	Member
46.	Mr. NAN Sarun	Chief of Sangkae Satorp Commune, Kampong Speu	Member
47.	Mr. DUL Sokhom	Chief of Tasal Commune, Kampong Speu	Member
48.	Mr. PICH Iluon	Chief of Rotak Commune, Pursat	Member
49.	Mr. UM Sami	Chief of Santrea Commune, Pursat	Member
50.	Mr. OUK Thim	Chief of Propil Commune, Pursat	Member
51.	Mr. PAK Phorn	Chief of Chheu Tom Commune, Pursat	Member
52.	Mr. MOENG Visalsokh	Chief of Kdol Senchey Commune, Pursat	Member
53.	Mrs. HAEM Kien	Chief of Chiep Commune, Pursat	Member
54.	Mr. SAEM Saroeun	Chief of Tuok Kpus Commune, Kampong Chhnang	Member
55.	Mrs. SOME Ron	Chief of Kbal Toek Commune, Kampong Chhnang	Member
56.	Mr. VANNAK Thoeun	Chief of Sraekoen Sub-station, Kampong Speu	Member
57.	Mr. THON Chan	Chief of Tetoek Sub-station, Kampong Speu	Member
58.	Mr. OUN Bunsoem	Chief of Ksal Sub-station, Kampong Speu	Member
59.	Mr. KONG Nhim	Chief of Chorm Sub-station, Kampong Speu	Member
60.	Mr. SUN Khimhean	Chief of Tayak Station, Kampong Speu	Member
61.	Mr. NOB Pheakdey	Chief of Kbal Toek Station, Kampong Chhnang	Member
62.	Mr. MOENG Him	Chief of Tachieb Station, Kampong Chhnang	Member
63.	Mr. CHHUN Phy	Chief of Kdol Senchey Station, Kampong Chhnang	Member
64.	Mr. NORN Naen	Chief of Toek Thlak Chrok La'eang CPA, Pursat	Member
65.	Mr. BEB Din	Chief of Raing Kvav CPA, Pursat	Member
66.	Mr. MOM Samath	Chief of Natural Resouce Conservation Federation, PAWS, Kampong Speu	Member
67.	Mr. PHAL Noeun	Chief of 'Suoy' Indigenous Te Toekpus Community, PAWS, Kampong Speu	Member
68.	Mr. NUT Heng	Chief of Natural Resouce Conservation Federation, PAWS, Kampong Chhnang	Member

## Article 2

The duties and responsibilities of the Working Group are as follows:

- Develop action plans and implementation schedules;
- Collect existing data and conduct field serveys to collect data on plant species, wildlife species, ecosystems, socio-economic conditions, cultural resources, religions of Indigenous people, land uses, and relevant documents;
- Facilitate and conduct meetings, training sessions, and consultation workshops at the national and sub-national levels;

- Widely raise and disseminate awareness and knowledge at the sub-national level to ensure that the relevant communities are sufficiently informed of the preparation, zoning, and management of the protected areas;
- Provide technical and political aspects of the development, zoning, and management plans based on the actual conditions and legal documents;
- Work with the national and sub-national technical institutions and relevant stakeholders to develop, zone, and prepare plans as smoothly and effectively as possible;
- Develop reports on alienation, zoning, and management plans based on criteria of guidelines on zoning and management plans;
- Develop a draft Sub-Decree on Zoning and Management Plans of Phnom Aural Wildlife Sanctuary to be submitted to the Ministry of Environment for review and approval from the Royal Government of Cambodia;
- Develop Phnom Aural Wildlife Sanctuary Management Plans and submit them to the Minister for Environment for review and approval;
- The members of the working group shall attend any meetings as invited by the chair of the working group;
- The meetings can be attended by the stakeholders if required; and
- Develop reports to be submitted to leaders on the progress and achievements of the work of the working group.

### **Article 3**

Chief of the Minister Cabinet, Secretary General of General Secretariate of the National Council for Sustainable Development, all General Directorates of the Ministry of Environment, Inspector of Inspectorate, Administration Halls of Koh Kong, Battambang, and Pursat provinces, relevant stakeholders and respective individuals as stated in Article 1 shall carry out this Sub-Decree effectively based on their duties from the date of its signature onward.

Phnom Penh, 12 January 2021

Minister

**SAY Samal**

### **CC:**

- Office of the Council of Ministers;
- Ministry of Interior;
- Ministry of Economy and Finance;
- Ministry of Land Management, Urbanization and Construction;
- Ministry of Public Functions;
- Provincial Administration Halls of Koh Kong, Battambang, and Pursat province ‘for information’;
- As stated in Article 3 ‘for implementation’ and
- Documentation-chronicles

## Abbreviations

<b>CBET</b>	<b>Community-Based Ecotourism</b>
<b>CPA</b>	<b>Community Protected Area</b>
GDNPA:	General Directorate of Natural Protected Area
GDLC:	General Directorate of Local Community
Ha	Hectare
<b>IP</b>	<b>Indigenous People</b>
MoE	Ministry of Environment
NGO	Non-Governmental Organization
NPASMP	National Protected Area Strategic Management Plan
NTFPs	Non-Timber Forest Products
PA	Protected Area
PAWS	Phnom Aural Wildlife Sanctuary
PDoE	Provincial Department of Environment
RGC	Royal Government of Cambodia
SMART	Spatial Monitoring and Reporting Tool
USD	US Dollars



## Contents

MESSAGES.....	ii
PREFACE.....	iii
Acknowledgement.....	iv
Abbreviations .....	viii
Executive Summary .....	xi
<b>1. Introduction .....</b>	<b>1</b>
<b>2. Description of Phnom Aural Wildlife Sanctuary (PAWS) .....</b>	<b>1</b>
<b>2.1 Geographic areas.....</b>	<b>1</b>
<b>2.2 Population and Socio-economic conditions.....</b>	<b>2</b>
<b>2.2.1. Population Distribution .....</b>	<b>2</b>
<b>2.2 Population distribution and socio-economics .....</b>	<b>2</b>
2.2.1 Population distribution .....	2
2.2.2 Socio-economic status .....	3
<b>2.3 Land Use .....</b>	<b>5</b>
<b>2.4 Values of Natural Resources .....</b>	<b>6</b>
2.4.1. Wildlife Inventory .....	6
2.4.2. Plant Inventory .....	9
<b>2.5. Values of Cultural Resources .....</b>	<b>9</b>
<b>2.6 Ecosystem Services.....</b>	<b>10</b>
<b>2.6.1 Ecotourism and Recreation .....</b>	<b>10</b>
<b>2.7 PAWS Management Structure and Facilities.....</b>	<b>10</b>
<b>3. Main Challenges for Management.....</b>	<b>11</b>
<b>3.1 Land Encroachment.....</b>	<b>11</b>
<b>3.2 Forest Degradation and Loss .....</b>	<b>11</b>
<b>3.3 Illegal Hunting/Trapping/Snaring.....</b>	<b>11</b>
<b>4. Management Program .....</b>	<b>12</b>
<b>4.1 Vision, Mission, and Goals .....</b>	<b>12</b>
<b>4.2 Approaches to Developing a Management Program .....</b>	<b>12</b>
<b>4.3 Key Existing Laws and Legal Documents for PAWS Management Plan Development</b>	<b>13</b>
<b>4.4 Management Plan Implementation Mechanism .....</b>	<b>13</b>
<b>4.5 Programs, Subprograms, Objectives and Indicators.....</b>	<b>13</b>
Program Area 1: Natural Resource Protection and Conservation .....	14
Objective and Summary of Program 1 .....	14
Subprogram 1.1. Develop zoning, management plan, boundary installation and state land registration .....	14
Subprogram 1.2. Investment on law enforcement and reduction of threats .....	14
Subprogram 1.3. Promote biodiversity conservation, research, and monitoring .....	15
Subprogram 1.4. Forest fire prevention.....	16
<b>Program Area 2: Expand community participation and benefits .....</b>	<b>16</b>
Subprogram 2.1. Support local participation in PA management .....	16
<b>Program Area 3: Promote Ecotourism Development.....</b>	<b>17</b>
Subprogram 3.1. Identify opportunities for ecotourism growth.....	17
<b>Program Area 4: Strengthen Institutional Capacity and Cooperation.....</b>	<b>18</b>
Subprogram 4.1. Ensure adequate staff with appropriate capacity and resources .....	18
Subprogram 4.1. Ensure adequate staff with appropriate capacity and resources .....	19
<b>5. Financing Needs to Implement PAWS Management Plan .....</b>	<b>20</b>
<b>6. Monitoring and Evaluation.....</b>	<b>20</b>
<b>6.1 Yearly Planning Preparation .....</b>	<b>20</b>
<b>6.2 Yearly Planning Preparation .....</b>	<b>21</b>

<b>6.3 Monitoring and Evaluation Mechanism .....</b>	<b>21</b>
6.3.1. Mid-term Evaluation.....	21
6.3.2. Yearly Evaluation .....	21
6.3.4. Data Monitoring and Evaluation .....	21
6.3.5. Biodiversity Evaluation .....	21
6.3.6. Threat Evaluation .....	22
6.3.7. Updating Management Plan .....	22
6.4. Management Plan Risk Assessment.....	22
<b>7. References.....</b>	<b>23</b>
<b>Annex 1. PAWS base map.....</b>	<b>24</b>
<b>Annex 2. PAWS zoning map .....</b>	<b>25</b>
<b>Annex 3. Summary of Allowable Activities and Facilities for Each Zoning .....</b>	<b>26</b>
<b>Annex 4. Summary of 5 Year (2022-2026) Operation Cost .....</b>	<b>27</b>

## Executive Summary

The Phnom Aural Wildlife Sanctuary (PAWS) was designated by the Royal Decree, dated 01 November 1993 with an area of approximately 256,108 hectares (2,561 km<sup>2</sup>); located in the geographical provinces of the Kampong Speu, Pursat, and Kampong Chhnang. This wildlife sanctuary which is under management by the Ministry of Environment represents Cambodia's highest mountain peak at 1,831 meters above sea level (asl). The high-elevation areas also receive the highest annual rainfall in Cambodia of 4,000 mm and play an important role in water reservoirs in Kampong Speu, Kampong Chhnang, and Pursat provinces. Zoning in this wildlife sanctuary is for the effective and sustainable management of each zone; especially core and conservation zones and meets the goal of the Phnom Aural wildlife sanctuary management plan.

People have been inhabiting PAWS long time ago and their main occupations include but are not limited to rice cultivating, cropping, trading, livestock raising, and collecting of timber and forest timber products, in which 4 forest species have been collected for their house construction; namely Khlong (*Dipterocarpus tuberculatus* Roxb), Tbeng (*Dipterocarpus abtusifolius*), So Kram (*Xylia dolabriformis* Benth), and Chheuteal Teuk (*Dipterocarpus alatus* Roxb) while other 11 NTFP types for their livelihoods such as resin, bamboo shoots, honey, mushrooms, and medicinal plants. PAWS is known to be rich in biodiversity with 950 species in total; including 158 bird species and 30 species of mammals. Recently, at least 308 wildlife species have been recorded in this wildlife sanctuary. 37 wildlife species in total have been captured by camera traps deployed from April to June 2021 and 23 species are threatened, near threatened, and rare species. Even though this wildlife sanctuary has high values of biodiversity and beautiful scenic landscape for recreation, entertainment, and tourist destinations, this protected area still faces some challenges for conservation and management such as (1) land encroachment, (2) forest losses and reduction from illegal logging, forest fires, expanded agricultural land, and charcoal production and (3) wildlife hunting, and snaring.

The 10-Year Management Plan (2022-2031) will be used as the road map for Phnom Aural WS management based on management programs and expected outputs for five years and it will serve as a foundation for informed management decisions. This PAWS Management Plan is of vision to contribute to the country's economy and sustainable development through the conservation and sustainable use of its biological, natural, and cultural resources and other ecosystem services. It can be achieved by a mission with five main goals: (1) Maintain and enhance ecological and cultural values; 2. Promote participatory community engagement and support to conservation management; (3) Develop innovative approaches to conservation and development, including opportunities for sustainable ecotourism and financing mechanisms; (4) Provide appropriate, timely, and relevant information for effective management; and (5) Strengthen protected area management effectiveness and work with the government ministries/institutions, local authorities, conservation NGOs, and development partners. To address the challenges faced by this PA, the first 5-Year Management Plan is developed; consisting of the 4 strategic programs, 11 subprograms, and 45 priority activities with the 1,612,500 US dollars in total as follows:

Program 1 on Natural Resource Protection and Conservation focuses mainly on the reduction of illegal activities such as land encroachment, hunting, snaring, and illegal logging. The priority activities to reduce these threats include but are not limited to boundary demarcation and installation for effective management and state land registration and improving law enforcement in each management zone. This program consists of 4 subprograms and 20 main activities with the total expenditure of about 1.2 million US dollars.

Program 2 on Expanded Community Participation and Benefits will prioritize the direct involvement of local and indigenous communities in the management of PAWS as participants in the uses of natural resources, and cooperative land so that they get equal benefits and enhance their local livelihoods through job opportunities, sustainable natural resources, and alternative livelihoods. Local knowledge will be particularly important in mapping and monitoring natural resources in PAWS (e.g. NTFPs). Efforts to raise awareness of the natural values of PAWS in local schools and at community

events will be facilitated by local participation in PAWS management. Program 2 consists of 3 subprograms, and 10 priority activities with a total budget of 177,000 US dollars.

Program 3 on Ecotourism Development focuses on the identification and establishment of large-scale ecotourism development managed by the private sector which their infrastructure development impacts are minimized. Rangers will regularly monitor and evaluate the maintenance of roads and trails. The new job creation opportunities within ecotourism services such as camping, scenic viewing, and wildlife watching are the main strategies for reducing pressures on natural resources, sustainable use of natural resources, and enhancing livelihoods of the local and indigenous communities. The program consists of 2 subprograms and 8 priority activities with the total cost of about 137,000 US dollars.

Program 4 on Institutional Capacity and Collaboration aims at building the capacity and relevant skills of rangers and officials in efficient and effective management. The management structure and sustainable financing in this wildlife sanctuary are also priority activities in this program. This program consists of 2 subprograms and 7 main activities with a total expenditure of 110,000 US dollars.

The last chapter of this Management Plan focuses mainly on monitoring and evaluation of the management plan implementation through quarterly, semesterly, and annual meetings. The monitoring and evaluation of biodiversity, budgeting, and risks of implementation are also raised in the meetings.

## **1. Introduction**

The Phnom Aural Wildlife Sanctuary (PAWS) was originally designated by the Royal Decree; dated 01 November 1993 and is located across the 3 provinces of Kampong Speu, Kampong Chhnang, and Pursat. The forest types in this WS are evergreen forests, semi-evergreen forests, deciduous forests, bamboo, grasslands, and water sources and bodies that are of good quality for wildlife habitats and economic development and as a result, it is urgently needed for PAWS to be effectively and efficiently managed and conserved.

The zoning is developed and processed based on the Law on Protected Areas, dated 15 February 2008 and the PAWS is, therefore, divided into 4 management zones: Core Zone, Conservation Zone, Sustainable Use Zone, and Community Zone. The Working Group for Zoning and Management Plan for Phnom Aural WS was officially established on 30 September 2020, under the chairmanship of chaired by Director General of the General Directorate of Protected Area (GDPA) and with 66 members in total from national and sub-national levels, national and international NGOs, local authorities and IP representatives. The Working Group for Zoning and Management Plan for Phnom Aural WS is formed to mainly do the zoning and develop the management plan for natural resource management and biodiversity conservation while enhancing the livelihoods of the local and indigenous communities within this PA.

After the working group was formed and approved, the first dissemination workshop was conducted from 20 to 21 October 2020 and the initial zoning and management plan map was drafted for the PA, and criteria for core, conservation, sustainable use, and community zones approved, the working group worked with the relevant provinces bordering the PA to introduce the information and conduct the consultation meetings to collect inputs and information on biological diversity, and socio-economic with district, commune and village authorities which was carried out from February 17, 2021 to March 20, 2021. In addition, 84 camera traps have been deployed in this wildlife sanctuary and at least 10 rare, endangered, near threatened, and threatened species have been discovered; including Asian elephants, Clouded Leopards, Mainland Serows, Asiatic Bleak Bears, Sun Bears, Black Giant Squirrels, Dholes, Gaurs, Leopard Cats, and Green Peafolws. Other key species are also found in this wildlife sanctuary such as Sambar Deers, Wild Boards, Red Manjecs, Siamese Peasants, Asian Pucupines, and other bird species.

After the results of biodiversity and social-economic data from field data collection were analyzed and approved, the first provincial consultation meeting was held to review and comment on the initial zoning map and outline management plan development for Phnom Aural Wildlife Sanctuary on July 26, 2021, and the second provincial consultation/inter-ministerial consultation meeting was carried out on November 11, 2021, to review and comment the 10-year Management Plan.

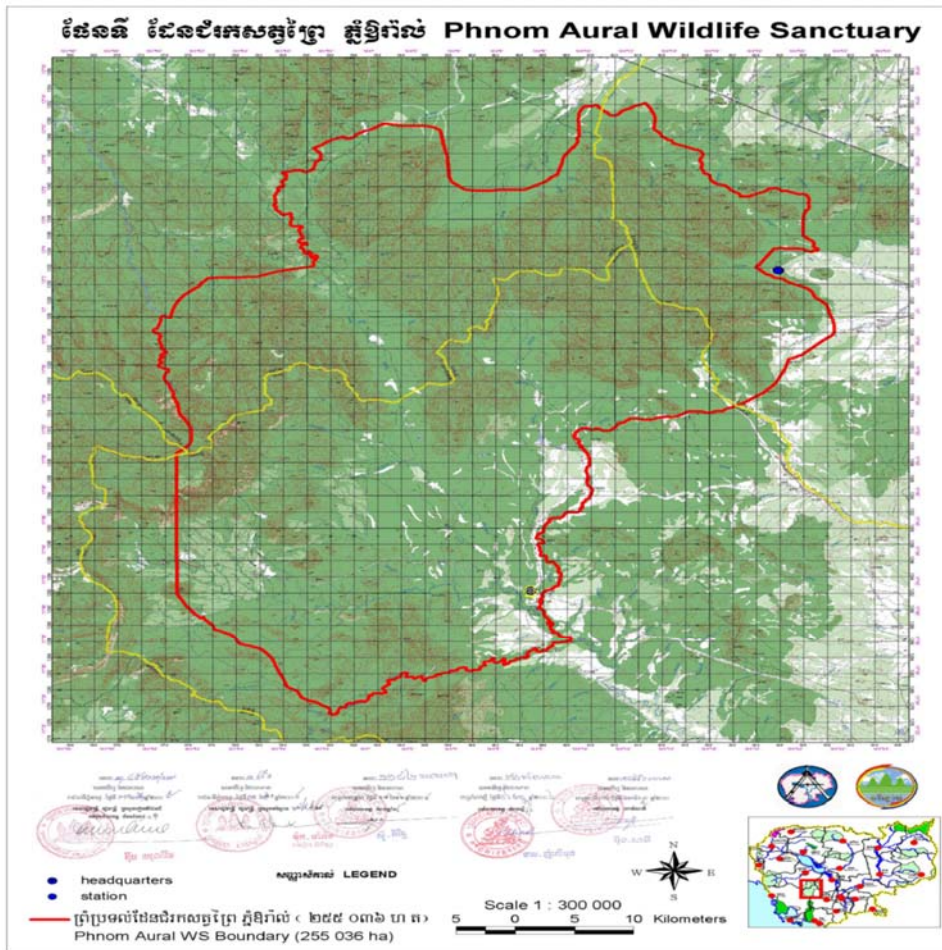
The main challenges faced by Phnom Aural WS in management and conservation are land encroachment, forest degradation and loss, and logging/hunting/snaring. The 10-year Phnom Aural WS Management Plan consists of 4 management programs, 11 subprograms, and 45 main activities for dealing with the 3 main challenges in Phnom Aural WS.

For effective and efficient management of Phnom Aural WS, the monitoring and evaluation of the implementation shall be conducted on a quarterly, semesterly, and yearly base.

## **2. Description of Phnom Aural Wildlife Sanctuary (PAWS)**

### **2.1 Geographic areas**

The Phnom Aural Wildlife Sanctuary (PAWS) was originally designated by the Royal Decree, dated 01 November 1993, and covers an area of approximately 255,036 hectares within Kampong Speu, Kampong Chhnang and Pursat provinces (Picture 1). PAWS is one of the protected areas which is of high value for biological diversity conservation and cultural resources as the majority of the forest covers are made of mountainous forests, semi-evergreen forests, dry forests, flat landscapes, and rich in biodiversity and cultures of Suoy Indigenous people.



**Picture 1. Map of Phnom Aural Wildlife Sanctuary in Kampong Speu, Kampong Chhnang and Pursat Provinces**

**2.2 Population and Socio-economic conditions**

**2.2.1. Population Distribution**

As indicated in the population data (CDB, 2019), there were 37,988 people in total, of which 8,436 families lived in 47 villages across 14 Communes, 5 Districts, and 3 Provinces in PAWS. Among them, there are 11 villages within in 4 communes of Cheab, Kbal Teuk, Toul Kbous, Kdol Sen Chey of Teuk Pos district, Kampong Chhnang province; 30 villages in 3 out of 4 communes of Trapeang Chor, Sangke Sratob, Tasal in Aural district and the remained commune of Amleang in Tborng district, Kampong Speu province and 6 villages in 4 communes of Krakor and Phnom Kravanh districts, Pursat province (Table 1).

**2.2 Population distribution and socio-economics**

**2.2.1 Population distribution**

Based on the commune data for 2019, the people have been living in 47 villages with PAWS; of which 11 villages are in 4 communes of Chrieb, Kbal Toek, Tuol Khpus, and Kdol Senchey in Toek Pos district in Kampong Chhnang and 30 villages in 4 communes in Kampong Speu; of which 3 communes of Tropeang Chor, Sangkae Satorb and Tasal in Aural district, and one commune of Ormleang in Thpong district. In Pursat province, there are 6 villages in 4 communes; of which the commune of Chheu Tom is in the Krakor district and 3 communes in the Kravanh district. Currently, 8,436 households, or 37,988 people are living within and near this PAWS (Table 1).

**Table 1. Population Statistics nearby and within PAWS**

Province/District/Commune	Phnom Aural WS			Whole Commune		
	# Total Families	#Total Population	#Females	# Total Families	#Total Population	#Females
<b>Kampong Chhnang Province</b>	<b>1,896</b>	<b>8,509</b>	<b>4,327</b>	<b>6,273</b>	<b>26,783</b>	<b>13,478</b>
<b>Tek Phos District</b>	<b>1,896</b>	<b>8,509</b>	<b>4,327</b>	<b>6,273</b>	<b>26,783</b>	<b>13,478</b>
Chiep	306	1,506	758	1,556	6,514	3,253
Kbal Tek	425	1,667	864	1,937	8,498	4,198
Tuol Khpus	135	696	342	1,305	5,246	2,713
Kdolsenchey	1,030	4,640	2,363	1,475	6,525	3,314
<b>Kampong Speu Province</b>	<b>2,896</b>	<b>12,974</b>	<b>6,593</b>	<b>9,298</b>	<b>41,064</b>	<b>20,889</b>
<b>Aural District</b>	<b>2,542</b>	<b>11,533</b>	<b>5,829</b>	<b>6,597</b>	<b>29,415</b>	<b>15,018</b>
Trapaing Chour	1,111	5,626	2,827	3,134	14,330	7,363
Sangke Satob	547	2,290	1,187	1,634	7,435	3,814
Tasal	884	3,617	1,815	1,829	7,650	3,841
<b>Thpong District</b>	<b>354</b>	<b>1,441</b>	<b>764</b>	<b>2,701</b>	<b>11,649</b>	<b>5,871</b>
Amleang	354	1,441	764	2,701	11,649	5,871
<b>Pursat Province</b>	<b>3,141</b>	<b>14,034</b>	<b>6,837</b>	<b>10,346</b>	<b>43,065</b>	<b>21,662</b>
<b>Krakor District</b>	<b>1,175</b>	<b>4,436</b>	<b>2,263</b>	<b>4,553</b>	<b>17,316</b>	<b>8,791</b>
Chheu Tom	1,175	4,436	2,263	4,553	17,316	8,791
<b>Phnom Kravahn District</b>	<b>1,966</b>	<b>9,598</b>	<b>4,574</b>	<b>5,793</b>	<b>25,749</b>	<b>12,871</b>
Prognil	706	2,325	1,394	2,782	12,247	6,244
Rokat	439	2,892	1,156	1,432	5,779	2,899
Santrea	821	4,381	2,024	1,579	7,723	3,728
<b>Total</b>	<b>7,933</b>	<b>35,517</b>	<b>17,757</b>	<b>25,917</b>	<b>110,912</b>	<b>56,029</b>

Source: 2019 Commune/Sangkat Data

In reference to the population data (CDB, 2017), only Suoy indigenous people have lived nearby and in Phnom Aural WS with 431 families, 2,476 people in total (818 female population). They inhabit in 8 villages of 2 communes ( Kor Daun Tey, Trang, Putrear, and Tanil villages) of Trapeang Chor commune and Chumtab, Kontuot, Dambang Venh and Kraing Pongro villages of Sangkae Satob commune) Aural district, Kampong Speu province (Table 2).

**Table 2. Indigenous People in and near of PAWS**

Province	District	Commune	Village	Suoy Families	# of Suoy Males	# of Suoy Females	Total
Kampong Speu	Aural	Trapeang Chor	Kor Dantei	60	261	128	389
			Trang	34	105	40	145
			Putrea	81	322	139	461
			Tanil	40	192	97	289
		Sangkae Satob	Chumnoab	40	123	97	220
			Kantuot	79	326	167	493
			Ta Daes	0	0	0	0
			Dambang Venh	45	140	67	207
			Krang Pongro	52	189	83	272
		<b>Total</b>				<b>431</b>	<b>1658</b>

Source: 2017 Commune/Sangkat Data

### 2.2.2 Socio-economic status

There are people who have been living in Phnom Aural WS for long period of time and they strongly depend on natural resources and other traditional subsistence include but are not limited to rice cultivating, local trading, livestock raising, and collecting of construction timbers; especially 4 forest species of Khlong (*Dipterocarpus tuberculatus* Roxb), Tbeng (*Dipterocarpus abtusifolius*), So Kram (*Xylia dolabriformis* Benth), and Chheuteal Teuk (*Dipterocarpus alatus* Roxb) and other 11 NTFP species collection; such as resins, bamboo shoots, honeys, 'Pok' mushrooms, medicinal plants and other mushroom species (Table 3).

**Table 3. Forest and Non Timber Forest Products of PAWS**

No.	Names of forest/non-timber forest products	Collection Zone	
		Sustainable Use Zone	Conservation Zone
<b>Collection of forest product for constructions</b>			
1	Khlong (Dipterocarpus tuberculatus Roxb)	√	
2	Tbeng (Dipterocarpus abtusifolius)	√	
3	Sokram (Xylia dolabriformis Benth)	√	
4	Chheuteal Teuk (Dipterocarpus alatus Roxb)	√	
<b>Collection of forest product for constructions</b>			
1	Firewood	√	√
2	Resin	√	√
3	Bamboo shoot	√	√
4	Medicinal plant	√	√
5	Bamboo	√	√
6	Potato	√	√
7	Honey	√	√
8	Khmork mushroom	√	√
9	Linchhi mushroom	√	√
10	Pok mushroom	√	√
11	Orchid	√	√
12	Phnhiev (Baccaurea ramiflora Lour)	√	√
13	Pong-ro (Schleicheria oleosa)	√	√
14	Se mornn (Nephelium hypoleucum Kurz)	√	√
15	Rattan	√	√
16	Vine	√	√

Source: Surveyed data 2021

The people tend to migrate and settle permanently or temporarily in this PA, depending on their land ownership, occupations, and long or short-term economic cropping and plantations and other supplementary occupations. The key activities to enhance the livelihoods of the local and indigenous communities consist of rice cultivation, crops and vegetable growing, and livestock farming. The annual incomes of these people from rice cultivating, cropping, and livestock farming are not much different across the three provinces. These agricultural activities are the key and highest income generation occupations with an average income per household is approximately 1 million Riels (USD 250), while the average secondary annual income from the collections of the NTFP is about 600,000 Riels (USD 150) (Table 4).

**Table 4. Main Occupations and Annual Incomes Per Household of PAWS**

Province	District	Commune	Paddy rice sale	Crop sale	Livestock sale	NTFP Sale	
Kampong Chhnang	Tek Phos	Chiep	2,450,000	0	98,750	0	
		Kbal Tek	675,517	0	0	31,034	
		Tuol Khpus	1,264,286	0	71,429	114,286	
		Kdolsenchey	2,233,350	2,166,250	2,941,500	1,475,813	
Kampong Speu	Aural	Trapaing Chour	721,552	707,845	1,070,603	587,328	
		Sangke Satob	217,500	735,000	776,500	255,000	
		Tasal	1,124,884	105,814	843,023	316,860	
		Thpong	Amleang	812,000	848,000	1,096,800	70,800
Pursat	Phnom Kravanh	Krakor	Chheu Tom	2,114,286	225,714	1,251,714	1,220,629
		Prognil	941,176	4,776,471	52,941	0	
		Rokat	1,183,333	5,125,000	255,000	1,750,000	
		Santrea	0	1,042,857	0	771,429	
<b>Average revenues per HH</b>			<b>1,062,385</b>	<b>1,007,414</b>	<b>1,017,520</b>	<b>589,920</b>	

Source: 2021 Surveyed Data



According to Table 5, the Suoy indigenous people are living in Phnom Aural Wildlife Sanctuary, depending on forest and non-timber forest products. With this table, Suoy indigenous people for their livelihood betterment have got mainly involved in livestock raising (chickens and cattle) of approximately 67%, while about 44% of this indigenous population practice rainy-season rice farming and other secondary jobs such as upland cropping, laboring, and collecting of forest and non-timber forest products. Based on the survey findings, about 11% of Suoy Indigenous people are active in collecting and harvesting forest and non-timber forest products in the wildlife sanctuary.

**Table 5. Main Occupations of Suoy IP in PAWS**

No	Occupation	(%)
1	Livestock raising	67%
2	Rice cultivating	44%
3	Laboring	22%
4	Upland cropping (Chamkar)	11%
5	NTFP collections	11%

Source: 2021 data collection

### 2.3 Land Use

Land uses are mainly identified in 47 villages across 12 communes, 5 districts of Kampong Chhnang, Kampong Speu, and Pursat provinces within the geographical areas of Phnom Aural WS by the total population of 8,436 households (37,989 individuals). In addition, the land use in this PA as well as natural resource collection have been practiced by villagers from other 14 villages nearby and outside this wildlife sanctuary

Based on the latest population data (CDB, 2019), 306,014 hectares of land (8,341 hectares of land are used for settlement, 49,683 hectares for rice fields and agriculture land 12,486 hectares for upland cropping (Chamkar) (Table 6).

**Table 6. Commune Land Use Data near and in Phnom Aural WS**

Province	District	Commune	Commune size (ha)	Settlement (ha)	Rice (ha)	Dry Season (ha)	Rainy Season (ha)	Chamkar (ha)	Other (ha)
Kampong Chhnang	Teuk Pos	Cheb	36,470	2,111	4,250	30	4,220	580	29,529
		Kbal Teuk	26,100	112	3,300	0	3,300	2,353	20,335
		Touk Kpous	12,670	724	1,980	0	1,980	1,227	8,739
		Kdoi Sen Chey	28,672	229	20,321	0	20,321	0	8,123
Kampong Speu	Aural	Trapeang Chou	36,705	1,050	2,784	0	2,784	1,005	31,866
		Sangke Sratob	18,352	423	2,029	0	2,029	571	15,329
		Tasal	6,047	872	4,300	0	4,300	875	0
	Thbong	Amlang	2,384	250	1,730	0	1,730	282	122
Pursat	Krakor	Cheu Tom	19,082	337	3,500	622	2,878	273	14,972
	Phnom Kravang	Prognil	50,350	1,310	3,215	300	2,915	4,110	41,715
		Rokat	2,450	825	419	25	394	85	1,121
		Santher	66,732	188	1,855	0	1,855	1,125	63,564
<b>Total</b>			<b>306,014</b>	<b>8,431</b>	<b>49,683</b>	<b>977</b>	<b>48,706</b>	<b>12,486</b>	<b>235,415</b>

Source: 2019 Commune/Sangkat Data

The proposed zoning in Phnom Aural WS is as follows:

- Core zone: 89,820 ha 35.22%
- Conservation zone: 67,458 ha 26.45%
- Sustainable use zone: 59,838 ha 23.46%
  - o 17 CPAs are established with 15,515 hectares in size (6 CPAs in Kampong Speu province, 9 CPAs in Kampong Chhnang province, and 2 CPAs in Pursat province); and

- 17 land concessions (10 small-scale ecotourism concessions, 5 agro-industrial land concessions, and 1 marble mining concession)
- Community zone: 37,910 ha 14.86%
- Infrastructure: the key roads within this PA are classified into 3 types: type 1 with a width of more than 8 meters; type 2 with a width of 5 – 8 meters and type 3 with a width of fewer than 8 meters. The forest trails for wildlife watching should be smaller than 5 meters; especially in the conservation zone.
- The harvesting of forest and non-timber forest products and wildlife hunting are done in various form:
  - Forest extractions for commercialization and home construction; especially luxury wood have been done widespread and within evergreen and semi-evergreen forests;
  - Collections of bamboo, resins, medicinal plants/herbs, and other NTFPs have been carried out in the sustainable and conservation zones;
  - The extractions of forest and non-timber forest products in the conservation zone should be closely monitored and if possible, forest and non-timber forest collectors in this zone are included to become local community and indigenous community patrolling team members.

## 2.4 Values of Natural Resources

### 2.4.1. Wildlife Inventory

PAWS is home to a variety of wildlife and a high diversity of habitats of over 960 wildlife species. Among these species, approximately 158 bird species and 30 mammal species have been recorded in this wildlife sanctuary (Daltry et, al. 2002, Chay et, al. 2005). Currently, 37 wildlife species have been recorded by camera traps which were deployed from April to June 2021 and 23 of which are near threatened and rare (Table 7, Table 8).

**Table 7. Plant and Wildlife Species Record in Phnom Aural Wildlife Sanctuary**

Animal/Plant	No. recorded	Threatened/rare species
Mammal	30	12
Bird	158	4
Reptile	38	2
Amphibian	24	2
Fish	42	0
Plant	269	9
<b>Total</b>	<b>561</b>	<b>29</b>

Source: Daltry, J.C. (ed.) (2002) and Chay K.K., Oul N., Chea M., Pan R., & Chhouk B. (2005)

**Table 8. Wildlife Species Recorded by Camera Traps in PAWS Core Zone**

No.	Wildlife Species Name	Scientific Name	Cambodian Status	IUCN Status
1	Asian Elephant	<i>Elephas maximus</i>	EN	EN
2	Gaur	<i>Bos gaurus</i>	Rare	VU
3	Southern Serow	<i>Capricornis sumatraensis</i>	Rare	VU
5	Sambar	<i>Rusa unicolor</i>	Rare	VU
6	Malayan sun bear	<i>Helarctos malayanus</i>	Rare	VU
7	Asiatic black bear	<i>Ursus thibetanus</i>	EN	VU
8	Clouded leopard	<i>Neofelis nebulosa</i>	EN	VU
9	Marble cat	<i>Pardofelis marmorata</i>	Rare	NT
10	Hog badger	<i>Arctonyx collaris</i>	Rare	VU
11	Dhole	<i>Cuon alpinus</i>	Rare	EN
12	Long tailed macaque	<i>Macaca fascicularis</i>	Rare	VU
13	Bintourong	<i>Arctictis binturong</i>	Rare	VU
14	Leopard cat	<i>Prionailurus bengalensis</i>	Rare	LC

**Table 9. Wildlife Species Recorded by Camera Traps in PAWS Conservation Zone**

No.	Wildlife Species Name	Scientific Name	Camera Trap	IUCN
1	Asian Elephant	<i>Elephas maximus</i>	Y	EN
2	Gaur	<i>Bos gaurus</i>	Y	VU
3	Sambar	<i>Rusa unicolor</i>	Y	VU
4	Hog badger	<i>Arctonyx collaris</i>	Y	VU
5	Malayan sun bear	<i>Helarctos malayanus</i>	Y	VU
6	Asiatic black bear	<i>Ursus thibetanus</i>	Y	VU
7	Clouded leopard	<i>Neofelis nebulosa</i>	Y	VU
8	Leopard cat	<i>Prionailurus bengalensis</i>	Y	LC

A number of mammal and bird species at risk (based on the IUCN Red List Criteria) are known to be present in PAWS, including at least five endangered species: Asian Elephant, Banteng, Silver Langur, Pileated Gibbon, and Green Peafowl. A total of 15 mammal and bird species were selected for comprehensive monitoring in PAWS during the implementation of this Project.

**Key wildlife species selected for comprehensive monitoring in PAWS**

Common name	Scientific name	IUCN global status (2021) <sup>1</sup>	Cambodia status
Asian Elephant	<i>Elephas maximus</i>	EN	Endangered
Banteng	<i>Bos javanicus</i>	EN	Rare
Gaur	<i>Bos gaurus</i>	VU	Rare
Mainland Serow	<i>Capricornus sumatraensis</i>	VU	Rare
Silvered Langur	<i>Trachypithecus germaini</i>	EN	Common
Pileated Gibbon	<i>Hylobates pileatus</i>	EN	Rare
Asiatic Black Bear	<i>Ursus thibetanus</i>	VU	Endangered
Sun Bear	<i>Helarctos malayanus</i>	VU	Rare
Clouded Leopard	<i>Neofelis nebulosa</i>	VU	Rare
Asiatic Golden Cat	<i>Catopuma temminckii</i>	NT	Rare
Black Giant Squirrel	<i>Ratufa bicolor</i>	NT	Rare
Hog Badger	<i>Arctonyx collaris</i>	VU	Rare

Alexandrine Parakeet	<i>Palaeornis eupatria</i>	NT	Rare
Wreathed Hornbill	<i>Rhyticeros undulatus</i>	VU	Rare
Green Peafowl	<i>Pavo muticus</i>	EN	Rare

<sup>1</sup> EN: Endangered; VU: Vulnerable; NT: Near Threatened

There are three primate species recorded in this wildlife sanctuary; including Yellow-cheeked Crested Gibbon, Northern Pig-tailed Macaque and Crab-eating Macaque. Key Species recorded by camera traps are Asian Elephant, Sun Bear, Asiatic Black Bear, Binturong, and Hog Badger while the bird species recorded are Green Peafowl, Siamese Fireback and Red junglefowl.



Crab Eating Macaque (left) and Pig Tailed Macaque (right)



Hog Bager (left) and Asian Elephant (right)



Asiatic Black Bear (left) and Sun Bear (right)



Gaur (left) and Sambar Deer (right)





Asian Serow (left) and Clouded Leopard (right)



Dhole (left) and Binturong (right)

Wildlife Species Recorded by Camera Traps, General Directorate of Natural Protected Area, Ministry of Environment, 2021

#### 2.4.2. Plant Inventory

The ecosystems of Phnom Aural Wildlife Sanctuary are considered to be home to many plant species and be habitats with good quality. The PAWS is mainly covered by evergreen and semi-evergreen forests (40.19%), deciduous forests (31.18%), and shrubs (8.16%) (Table 10).

The comprehensive plant survey in PAWS has not been done as there are globally important plant species with high economic values and scenic landscapes for tourists. More plant surveys, in this regard, are required to evaluate the plant values for their conservation. 269 plant species have been recorded in PAWS since 2002 (Daltry et, al. 2002).

**Table 10. Land Use Changes in 2010 and 2015 in PAWS**

No	Type	2010 (ha)	2015 (ha)	Land Cover Change
1	Annual Crop	6,591.30	39,838.00	33,246.70
2	Paddy Rice	5,804.17	6,478.00	673.83
3	Shifting Cultivation	917.19	319.00	598.19
4	Grass Land	202.19	1,033.00	830.81
5	Shrub Land	26,100.60	21,573.00	4,527.60
6	Urban Area	260.01	953.00	692.99
7	Bare Soil	0.35	1.00	0.65
8	Industrial Plantation	9,404.59	8.00	9,396.59
9	Deciduous Dorest	86,525.60	79,523.00	7,002.60
10	Evergreen Forest	117,411.27	102,500.00	14,911.27
11	Bamboo Forest	1,639.62	1,572.00	67.62
12	Water Body	179.23	1,239.00	1,059.77

#### 2.5. Values of Cultural Resources

There are 47 villages with PAWS within 12 communes and 5 districts of Kampong Chhnang, Kampong Speu and Pursat provinces. The 8,436 households in total (37,988 people) which are located within and nearby PAWS depend on land uses and natural resources. Based on CBD 2017, about 431 Suoy Indigenous families (2,476 people, 818 females) are living near and inside PAWS in 8 villages, 2 communes (Kor Dauntey, Trang, Putrea, and Tanil villages of Trapeang Chor commune; while Chum Nob, Kantout, Dambang Ving and Krang Ponror villages

of Sagne Santoub commune) of Aural district, Kampong Speu province. Based on the consultation meetings and interviews with local communities, the villagers in Kampong Chhnang province; especially Cambodian people still believe in forest and mountainous spirits and souls in various locations such as Phnom Tapek Meun Lam, Kmosh Ngi, Tachek, and Phnom Ou Plov. The same case is also applied to the Kuoy indigenous people in Kampong Speu province in a number of places: Neak Ta Trapeang Chor, Kor Dauntey, Phnom Tauch, Angkoul, Beong Klor, Tor Ror, Chouk, Teung Meung, Neak Ta Kvean, Neak Ta Loung, Neak Ta Knor, Neak Ta Srouk, Neak Ta Tasal and Neak Ta Kovrov. In Pursat province, the community and indigenous people also believe in forest and mountainous spirits and souls; especially Ror Kat village, Phnom Pek Tasrok, Ta Kra Horm Kor, Neak Ta Chas Srok, Neak Ta Thmor Damrey, Yey Daun Mear and Neak Ta Reang Kvav. The majority of these forest and mountainous spirits and souls are located in the community and sustainable use zones; except that Neak Ta Thmor Damrey, Yeav Daun Mear and Neak Ta Rang Kvav are in the conservation zones.

Thus, it is required that the Ministry of Environment cooperate with stakeholders especially IP group to demarcate natural heritages and strengthen conservation values in each community for the benefit of enhancing natural cultural resources and promoting ecotourism.

## 2.6 Ecosystem Services

### 2.6.1 Ecotourism and Recreation

There are currently 19 below-10-hectare ecotourism concessions with a total of 168,2799 hectares licensed by MoE in PAWS within Kampong Speu Province. However, only one contract is made with one company for implementation. The ecotourism areas that are attractive tourist destinations include but are not limited to the highest spectacular mountain view of 8,813 meters, Te Teuk Pous, waterfalls, rivers, mountainous forests, and natural, mountainous landscapes in PAWS.

Besides small-scale ecotourism concessions with less than 10 hectares in PAWS, there are many attractive ecotourism sites; especially in Kampong Chhnang province such as Anlong Svay, Anlong Thmor, Thmor Kral Waterfall, and Sre Ampel Waterfalls. Other high-potential sites for ecotourism development in Kampong Speu province include Knorng Phnom Aural, Thmor Da, Peam Lvar, Damnak Barang, Damnak Resey, and Anlounng Resey, while the attraction sites in Pursat province are Phnom Lor Ta Krahorm Kor, Lor Ta Thmor Damrei, Chay Seinatarikar and Chay Santor.

### 2.7 PAWS Management Structure and Facilities

Currently, 65 permanent rangers are working in PAWS; with one man based on its size in charge of about 3,940 hectares; especially the largest proportion in Pursat province with only 16 rangers. There are a total of 4 main stations and 13 sub-stations used by the rangers; most of them are old and in need of significant repair and renovations. Each ranger is equipped with a rifle and a motorbike for personal protection and enforcement purposes (Table 11).

**Table 11. Staffing, facilities, and equipment in PAWS**

	Province (PAWS area)			Total
	KC (35,772 ha)	Pursat (79,136 ha)	KS (141,200 ha)	
Management structure	1 Director 2 Deputy Directors	1 Director 2 Deputy Directors	1 Director 2 Deputy Directors	<b>9</b>
# of Rangers	13	16	36	<b>65</b>
# of Rangers/100km <sup>2</sup>	4	2	3	<b>3</b>
Annual budget (USD) <sup>1</sup>	43,680	53,760	120,960	<b>218,400</b>
# of main stations	2	1	1	<b>4</b>
# of sub-stations	3	3	7	<b>13</b>

# of CPAs	6	2	9	<b>17</b>
Motorbikes	10	8	11	<b>29</b>
GPS	0	1	1	<b>2</b>
Nursery	0	1	0	<b>1</b>
AK-47 rifles	13	17	38	<b>68</b>

### 3. Main Challenges for Management

In PAWS, both outsiders and local people are involved in illegally converting natural forests, land encroachment for sale, hunting, trapping, illegal or clearing forest areas and illegal charcoal production. The trapping offenders have applied high techniques and caused extreme dangers to rangers and local community members when patrolling. Some local community members are involved in illegal logging for outsider traders who offer money and heavy machinery to them in advance. In addition, some outsiders have carried out land encroachment and conducted other illegal activities. Other problems facing wildlife sanctuary management include limited numbers of rangers, malaria suffered by the rangers, and limited knowledge and awareness of the CPA committee on their roles and responsibilities. Moreover, there are limited and partial involvements of the CPA committee in the implementation of the community statute and internal provisions. Findings of the consultation meetings in 47 villages across three provinces revealed that the key threats and pressures for the management of this wildlife sanctuary are as follows:

#### 3.1 Land Encroachment

Land encroachment is a common challenge facing many PAs in Cambodia. In PAWS, both outsiders and the local people have been involved in illegally converting natural forests and other habitats to agricultural lands or settlements for further development. Land encroachment is mostly carried out by outsiders from other provinces throughout the country. This act in PAWS is regarded as the most serious threat compared with others and is done through forest burning, logging, and clearing forested areas with machinery saws. The main purpose of land encroachment is to expand agricultural land and new settlements. The key measures to prevent these illegal activities are the establishment of community-protected areas, state land registration, contract agreements to monitor chain saws, sawmills, equipment for land encroachment and illegal transportation, law enforcement at the community level, and filing the cases of illegal activities for the court with the support by the lawyers. Law enforcement is poorly carried out due to no or limited demarcations and **boundary signposts** of the PA zones.

#### 3.2 Forest Degradation and Loss

Small-scale illegal logging is still practiced within PAWS with chain saws being illegally used, especially motorbikes and two-wheel tractors being illegally used to transport the logs and charcoal, and these activities are carried out by outsiders. Forest fires are caused by land clearing activities and charcoal production and most of the forest degradation by road accessibility; in particular in the more accessible parts of PAWS in the south and east. A comparison of land cover maps from 2010 to 2015 shows that total forest cover (deciduous and evergreen forests) declined from 80% to 71% while the agricultural land rate increased from 3% in 2010 to 16% by 2015 in PAWS.

Rangers and local authorities need to monitor and develop a database for management measures against chain saws and transportation means or illegal log processing sites; including the case files to the courts.

In-migration and new settlements have increased within the last 5 years due to land offering to the outsiders. The measures to prevent these activities are to clearly define the zone boundaries, state land registration throughout PAWS closely monitor the land uses by outsiders, and enforce the laws.

#### 3.3 Illegal Hunting/Trapping/Snaring

Illegal commercial hunting (especially snaring) remains the major threat to ground-dwelling mammals and snaring continues to be a conservation concern in PAWS. The findings from interviews and group discussions with commune chiefs, village chiefs, and committee

members of the local and indigenous communities show that hunting and trappings/snaring are rated as the second threats after land encroachment. These threats are caused by outsiders, land economic concession workers, and local communities. To prevent these threats, some action should be taken; including increasing patrolling and removing snares and traps with participation from local and indigenous community people; public awareness on the values of natural resources, especially wildlife and protected area law as well as law enforcement. In addition, court cases with support from the lawyers should be filed and ruled as widely as possible.

#### **4. Management Program**

##### **4.1 Vision, Mission, and Goals**

**Vision:** PAWS will contribute significantly to the national economy and sustainable development, including poverty reduction through the conservation of biological diversity and sustainable use of biological, natural, and cultural resources and other ecosystem services.

**Mission:** Realize the effective, efficient, and equitable management of PAWS.

With the mission, the following **Goals** will be ensured:

1. Sustain and enhance the ecological and cultural values;
2. Promote engagement, involvement, and support of the local and Indigenous communities in the management of PAWS;
3. Develop innovative approaches for conservation and development; including opportunities for sustainable ecotourism and financing mechanisms;
4. Make available the relevant, accurate, and timely information for effective management; and,
5. Strengthen protected area management effectiveness and work with government organizations, local authorities, conservation NGOs, and development partners.

##### **4.2 Approaches to Developing a Management Program**

The field assessments and surveys were conducted to identify the vulnerable areas and key biodiversity hotspots to understand the levels of natural resource uses and needs within PAWS. The fieldwork focused on the assessment of situations of biodiversity, natural resources, ecosystem services, socio-economic factors, cultural and traditional resources as well as participatory management mapping with the participation of local community and indigenous groups. The involvement of community people and local authorities is crucial to assess the economic needs. Based on the biodiversity data compiled, especially the past five years' information and field survey data in PAWS, its situations and forest cover are useful for forest conservation values and wetlands. The identified development conservation and core zones are very important to be identified by local communities as they are of unique ecosystems and different from the areas where the community members are living and the areas where and depend on to collect the natural resources for their livelihood subsistence. The assessment for zoning must be a process fully involving the members of local and indigenous communities, local authorities, and other stakeholders to identify socio-economic situations and key biodiversity hotspots. Key activities to be carried out to develop management plan development are as follows:

**Preparation for village field survey:** 47 villages near and inside PAWS have been selected for group discussions and interviews on the socio-economic status, biological resources, and participatory mapping for zoning. Key persons for this exercise are commune chiefs, village chiefs, local and indigenous community chiefs, old people who know the areas, IP representatives, and women.

**Process of data collection preparation:** Questionnaires were developed to do the field, and village surveys; focusing on socio-economic and biodiversity status and participatory zoning process. In this exercise, the map with existing information and biodiversity data was used to collect field socio-economic and biodiversity data from the local and indigenous communities.

**Interviews with villagers:** The initial interviews were done to collect socio-economic data and information; especially the uses of natural resources and their economic activities, followed



by interviews on biodiversity data and its status, habitats, wildlife species, and wildlife distributions which are known by local communities so far. Last but not least, zoning mapping was drafted; focusing mainly on draft boundaries of land uses and natural resources of the communities. Based on the knowledge of local and indigenous community people, the core zone, conservation zone, sustainable use zone, and community zone based on the Law on Protected Areas and relevant provisions of the Kingdom of Cambodia are determined in a participatory manner.

#### **4.3 Key Existing Laws and Legal Documents for PAWS Management Plan Development**

The key legislation for the development of a 10-year management plan is the following:

- Law on Protected Areas (2008);
- Law on Land (2001);
- Law on Environmental Protection and Natural Resource Management (1996);
- National Protected Area Strategic Management Plan 2017-2031;
- National Protected Area Management Strategy and Action Plan 2018-2022;
- Technical Guideline on Protected Area Management Plan (2018); and
- Technical Guideline on Protected Area Zoning (2017).

#### **4.4 Management Plan Implementation Mechanism**

Some activities of the Management Plan are carried out by CSLEP while sub-national administrations, partnership organizations, the private sector, and other stakeholders are encouraged to be part of the implementation mechanisms after the sub-decree on PAWS Zoning is endorsed by the Royal Government of Cambodia. In addition, the PAWS 10-Year Management Plan is formally approved by the Ministry of Environment. Certain priority actions that are supported by the Cambodia Sustainable Landscape and Ecotourism Project include but are not limited to boundary signpost installation, state land registration, law enforcement training, and ecotourism development.

Dissemination workshops on the Zoning Sub-Decree and approved 10-Year Management Plan will be held in the three relevant provinces. Over the longer term, management plan implementation will be overseen and advised by the Technical PAWS Management Group as part of annual operating plans. This technical group is established by GDPA and the PdoEs and supported by the sub-national authorities and local communities to ensure the effectiveness of leadership and management.

#### **4.5 Programs, Subprograms, Objectives and Indicators**

The 10-Year PAWS Management Plan (2022-2031) is part of the roadmap for effective management of this PA based on 5-year strategic program areas with each having a series of subprograms and main activities. The main objective of this management plan is to improve natural resource management, increase wildlife population, and better local community livelihoods. In response to the management challenges in PAWS, the initial 5-year management plan with a total expenditure of about 1.6 million US dollars is based on four strategic program areas with 11 subprograms and 40 main activities (Table 12).

**Table 12. Summary of PAWS Management Programs**

<b>Program area</b>	<b>Subprograms</b>
1. Natural Resource Protection and Conservation	1.1 Complete zoning, boundary demarcation, signpost installation, and state land registration 1.2 Invest in law enforcement and threat reduction 1.3 Promote biodiversity conservation, research, and monitoring 1.4 Actively prevent forest fires

2. Expand Community/IP Participation and Benefits	2.1 Support local community, women, and IP participation in PA management 2.2 Facilitate CPA development and cultural resources (local community, women, and IP) 2.3 Expand environmentally sustainable livelihood opportunities
3. Promote Ecotourism	3.1 Identify opportunities for ecotourism growth 3.2 Promote locally operated ecotourism services
4. Strengthen Institutional Capacity and Cooperation	4.1 Ensure adequate staff with appropriate capacity and resources 4.2 Develop effective and inclusive structures for implementing MP

**Program Area 1: Natural Resource Protection and Conservation  
Objective and Summary of Program 1**

Program 1 on natural resource protection and conservation is focused on the reduction of illegal activities; such as land encroachment, hunting, snaring, and illegal logging. Priorities for reducing these threats include boundary demarcation and installation, state land registration, strengthening law enforcement in the core and conservation zones, forest restoration, and preventing forest fires. This program consists of 4 subprograms and 20 main activities with a total expenditure of about 1.2 million US dollars as described below:

**Subprogram 1.1. Develop zoning, management plan, boundary installation and state land registration**

The subprogram consists of 5 key activities and the proposed priority activities, time and responsible institutions are summarized as follows:

Activity	Time (Year)	Responsible	Stakeholder
Activity 1: Complete demarcation and pole installation in Core and Conservation Zones	1-2	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 2: Complete State Land Registration for Core and Conservation Zones	1-3	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 3: Complete dissemination workshops on Zoning Sub-decree	1	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 4: Complete dissemination workshops on Management Plan	1	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 5: Monitoring management plan implementation	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders

**Subprogram 1.2. Investment on law enforcement and reduction of threats**

The subprogram consists of 6 key activities and the proposed priority activities, time and responsible institutions are summarized as follows:

Activity	Time (Year)	Responsible	Stakeholder
Activity 1: Law enforcement based on PA law 2008 and other regulation	<u>1-5</u>	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 2: Development and implementation law enforcement framework	1-2	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 3: Provide enough facility, equipment and human resources	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 4: Ensure enough capacity strengthening for patrolling	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 5: Coordinate with national, provincial and authority	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 6: Develop patrolling system and community patrolling	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders

### Subprogram 1.3. Promote biodiversity conservation, research, and monitoring

The subprogram consists of 5 key activities and the proposed priority activities, time, and responsible institutions are summarized as follows:

Activity	Time (Year)	Responsible	Stakeholder
Activity 1: Wildlife monitoring and evaluation through SMART	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 2: Continue the use of camera traps	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 3: Encourage researchers and students to carry out detailed biodiversity surveys in the Core and Conservation Zones	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 4: Site assessment for forest restoration through enrichment planting and assist natural regeneration	1-2	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 5: Forest restoration	3-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders

### Subprogram 1.4. Forest fire prevention

The subprogram consists of 4 key activities and the proposed priority activities, time, and responsible institutions are summarized as follows:

Activity	Time (Year)	Responsible	Stakeholder
Activity 1: Research, monitoring and evaluation on natural resource fire	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 2: Provide basic training in forest fire prevention and suppression to PAWS Rangers and village heads	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 3: Mobilize and equip local forest fire teams to be able to quickly respond to emergencies	1	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority,
Activity 4: Develop leaflet and other publication	1	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders

### Program Area 2: Expand community participation and benefits

Local participation in PA management will be supported by involving interested local villagers and IP directly in the management of PAWS as participants in advisory committees, enforcement patrolling, biodiversity surveys, CBET initiatives, or CPA management. Local knowledge will be particularly important in mapping and monitoring natural resources in PAWS (e.g. NTFPs). Efforts to build awareness of the natural values of PAWS in local schools and at community events will be facilitated by local participation in PAWS management.

Support for the development and management of CPAs represents one of the more direct ways to expand community participation and benefits in PA management. Support will be provided to the local CPA Committees to develop and implement simple Management Plans that showcase the importance of conservation to sustainable livelihoods. This program consists of 3 subprograms and 10 main activities with a total expenditure of about 177 000 US dollars as described below:

#### Subprogram 2.1. Support local participation in PA management

The subprogram consists of 6 key activities and the proposed priority activities, time, and responsible institutions are summarized as follows:

Activity	Time (Year)	Responsible	Stakeholder
Activity 1: Mapping Non Timber Products	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 2: Monitoring and Evaluation the uses of NTFPs	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 3: Promote NTFP market	1	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 4: Promote livestock	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 5: Implement diversify agriculture	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 6: Promote puring drinking water and sanitation	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders

## Subprogram 2.2. Facilitate CPA and cultural resource development

The subprogram consists of 4 key activities and the proposed priority activities, time, and responsible institutions are summarized as follows:

Activity	Time (Year)	Responsible	Stakeholder
Activity 1: Prepare publication and communication materials	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 2: Intergrate into 3 year commune development	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 3: Provide ongoing support to CPA Management Committees	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 4: Share knowledge and lesson learnt with CPA network	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders

## Program Area 3: Promote Ecotourism Development

Existing ecotourism managed by local communities and small-scale ecotourism (<10 h) concessions managed by the private sector in PAWS will be registered with MoE. Opportunities for ecotourism growth will be explored as part of an overall Ecotourism Strategy for the CMTS landscape that identifies destination targets based on the potential for wildlife watching and wilderness experiences. The experiences of existing ecotourism businesses in Kampong Speu Province will be reviewed to apply best practices to other potential areas of PAWS. Locally operated ecotourism services will be promoted and training, marketing support, and seed funding will be provided to local individuals or groups interested in starting up CBET ventures.

Basic infrastructure support will include at least one interpretive information center for ecotourism (located at one of the renovated Main Stations in PAWS) with access to drinking water and sanitation. Signage appropriate for ecotourism will be developed and installed at trailheads (e.g. leading to the Phnom Aural Summit) and other attractions in PAWS. A tourism brochure (with a map) will be developed for PAWS and included in a promotional website featuring attractions in the CMTS landscape. This program consists of 2 subprograms and 8 main activities with a total expenditure of about 137 000 US dollars as described below:

### Subprogram 3.1. Identify opportunities for ecotourism growth

The subprogram consists of 4 key activities and the proposed priority activities, time, and responsible institutions are summarized as follows:

Activity	Time (Year)	Responsible	Stakeholder
Activity 1: Register existing ecotourism concessions	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 2: Identify wildlife and landscape viewing	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 3: Identify adventure tourist destination	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders

### Subprogram 3.2. Promote locally operated ecotourism services

The subprogram consists of 4 key activities and the proposed priority activities, time, and responsible institutions are summarized as follows:

Activity	Time (Year)	Responsible	Stakeholder
Activity 1: Train local community on ecotourism management and services	1-3	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 2: Establish CBET information center	1-2	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 3: Install ecotourism signs	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 4: Promote pure drinking water system and sanitation	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders

### Program Area 4: Strengthen Institutional Capacity and Cooperation

Clear ToRs will be developed for a core group of permanent staff assigned to manage and protect the Phnom Aural Wildlife Sanctuary (PAWS). It is proposed that this core group will include one Director, two Deputy Directors, two Finance/Admin support staff, and at least 65 Rangers (Table 13). This program consists of 2 subprograms and 7 main activities with a total expenditure of 110 000 US dollars as described below:

#### Subprogram 4.1. Ensure adequate staff with appropriate capacity and resources

The subprogram consists of 4 key activities and the proposed priority activities, time, and responsible institutions are summarized as follows::

Activity	Time (Year)	Responsible	Stakeholder
Activity 1: Provide technical and magement trainings to rangers and PAWS staff	1-3	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 2: Capacity assessment and training rangers for Phnom Aural WS management plan implementation	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 3: Facility, Equipment and enough staff	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 4: Support activity to reduce malaria	1-5	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders

### Subprogram 4.1. Ensure adequate staff with appropriate capacity and resources

The subprogram consists of 3 key activities and the proposed priority activities, time, and responsible institutions are summarized as follows:

Activity	Time (Year)	Responsible	Stakeholder
Activity 1: Develop ToRs and organizational structure for PAWS staffing	1	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 2: Establish the PAWS Management Committee	1	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders
Activity 3: Disseminate PAWS management plan	1	PDOE/PA director	MOE, PDOP, CSLEP, Local Authority, Society and other relevant stakeholders

**Table 13. Proposed PAWS Management Structure**

Position	Responsibility	Note
1- PAWS Director	<ul style="list-style-type: none"> <li>- Be overall responsible for effective PAWS management, implementation of the PAWS MP (2022-2031), and the functioning of the PAWS Management Committee;</li> <li>- Supervise two deputy directors and work closely with PDoEs in Pursat and Kampong Chhnang Provinces.</li> </ul>	Based in Kampong Speu PDoE; Should have senior management experience.
1- PAWS Deputy Director (Enforcement)	<ul style="list-style-type: none"> <li>- Be responsible for training and supervising rangers, organizing SMART patrolling, and liaising with other local enforcement agencies;</li> </ul>	Based in PAWS Main Station; Should have enforcement and people management background.
1- PAWS Deputy Director (Conservation and Livelihoods)	<ul style="list-style-type: none"> <li>- Be responsible for planning and overseeing activities related to conservation and livelihoods support;</li> <li>- Work with CPA Management Committees and CBET operators.</li> </ul>	Based in PAWS Main Station; Should have a technical background.
2- Admin/ Finance support staff	<ul style="list-style-type: none"> <li>- Be responsible for providing admin and finance support to core staff in PAWS;</li> <li>- Work closely with PDoE counterparts in 3 Provinces.</li> </ul>	Based in Kampong Speu PDoE and reporting to the PAWS Director.
65- PAWS Rangers	<ul style="list-style-type: none"> <li>- Be responsible for preventing and detecting illegal activities, patrolling, guiding, biodiversity monitoring, and supporting local community initiatives.</li> </ul>	Based on PAWS (Stations and sub-stations); Should be hired locally.

Implementation of the PAWS Management Plan will be led by a permanent PAWS Management Committee (MC) with membership largely representing that of the PAWS Working Group established to develop the zoning and management planning for the area. The PAWS MC should meet at least twice annually to review implementation progress and approve operational plans. It is proposed that the MC is chaired by the department director of GDNPA and that a PDoE Director and District Governor act as Deputy Chairs (Table 13). The Secretary for the Management Committee in charge of preparing the agendas and recording the minutes, will be the PAWS Director. To keep the MC inclusive while also operating effectively, it is proposed that the



membership include 1) the remainder of the PDoE Directors and District Governors; 2) a selection of Commune Chairs and CPA Chairs; and, 3) representatives from a minimum of 2 NGOs active in PAWS (Table 14).

**Table 14. Proposed PAWS Management Committee (21 members)**

<b>Chair:</b>	Department Director of Southern Terrestrial Protected Area Conservation, GDNPA, MOE
<b>Deputy chairs:</b>	1 - PDoE Director (Kampong Speu Province) 1 - District Governor (rotating between 5 Districts)
<b>Secretary</b>	PAWS Director
<b>Members</b>	2 – PDoE Directors (Pursat and Kampong Chhnang) 4 – District Governors 5 - Commune Chiefs (selected from 11 communes) 5 - Local community representatives (selected from 17 CPA Chairs) 2 – NGOs (active in the PAWS)

## 5. Financing Needs to Implement PAWS Management Plan

The PAWS Management Plan covers 10 years (2022-2031) with a major review scheduled after 5 years (i.e. in 2026) to make any changes to program focus and implementation, as necessary. Financing needs have been identified for the first 5 years (2022-2031) with a focus on activity (programme) costs that need to be covered over and beyond existing core government budgets from the central and provincial MoE sources.

The indicative cost of implementing the program areas described above is \$1,612,500 US dollars over the next 5-year period (Annex 4). Most of these program costs (>80%) will require external financing and it is proposed these costs be covered by existing CSLEP budgets. When including core operational costs covered by annual allocations from government budgets (MoE and PDoEs), the total cost of implementing the PAWS MP over the next 5 years is estimated at \$2.220 million (Annex 5). The government portion that covers salaries, travel, consultations, repairs, and maintenance represents about 65% of this total estimated cost.

The Cambodia Sustainable Landscape and Ecotourism Project (CSLEP) offers a unique opportunity to “kick-start” the PAWS MP by providing financial support for priority activities such as boundary demarcation, state land registration, enhanced law enforcement, and the promotion of alternative livelihoods (including NTFP value chains and ecotourism development). Since CSLEP is a time-limited project that ends in 2025, it will be important to quickly receive approval for the building blocks of PAWS management (i.e. the PAWS Zoning Sub decree and Management Plan) to use the funding available.

Over the longer term, government budgets will continue to cover basic operational costs (including salaries, travel, patrolling, and basic repair/maintenance of government property). Only limited government funds are available for program investments (such as targeted training of technical and enforcement staff; biodiversity monitoring; livelihood development and CPA support). While development partners including donors and NGOs have been instrumental in providing funding support to PAs in Cambodia, this support cannot be counted on as sources of sustainable funding. As part of implementing CSLEP, a financing strategy will be developed to identify potential sources of sustainable funding for the continued protection of the Cardamom Mountains – Tonle Sap Landscape that could include fees for eco-tourism and the provision of ecosystem services (such as water supply, REDD+).

## 6. Monitoring and Evaluation

### 6.1 Yearly Planning Preparation

After the Phnom Aural WS 10-year management plan is approved by the MOE Minister, the Phnom Aural WS director or management committee will conduct a dissemination workshop and training with the participation of their staff, ranger, local authority, civil society, private sector,



partners, and donors and then, they will develop the monthly, quarterly, six month and yearly implementation work plan based on indicators (Appendix 4). Priority key activities and indicators will be amended when needed but an explanation of the reasons for changing are required and based on indicators and expected outputs. In case, some activities cannot be implemented then these will be proposed to the next year's work plan.

### **6.2 Yearly Planning Preparation**

SMART tools will be used to collect, analyze, monitor, and evaluate law enforcement activities, and wildlife research on species present in the sanctuary. This will also help develop summary reports for decision makers for developing the next strategic action plans for effective management and on-time implementation and this will be used as the road map for preparing and identifying priority activities and help monitor and evaluate the progress and planning during implementation. The head of each ranger station should have enough capacity to collect, analyze, and do reporting using the SMART tool and have to report directly to the director or deputy director of the wildlife sanctuary.

### **6.3 Monitoring and Evaluation Mechanism**

Monitoring and evaluation of the implementation progress of the PAWS Management Plan will help to increase the effectiveness and efficiency of the management, especially using the SMART tool. The director or deputy director of the wildlife sanctuary is in charge of preparing, collecting, analyzing, and preparing reports based on the information from each ranger station for preparing reports to the PDOE or Provincial Department Director. To ensure effective management, the information system and at least one meeting with stakeholders per year is needed.

#### **6.3.1. Mid-term Evaluation**

A mid-term review will compile the information based on the yearly reports, focusing on potential reorientation and perspectives for the current management plan. The achievements or ongoing achievements of success indicators will be assessed for recommendations.

#### **6.3.2. Yearly Evaluation**

To ensure effective implementation of the management plan, regular reports and assessments are required. As a key component of the monitoring system, it is suggested that a yearly report be prepared by the management team, assessing progress against each objective and action on the basis of the success indicators identified in the management plan. The first draft of the report will be discussed in an annual workshop involving all the stakeholders/partners of the management plan from village level to province level. This annual workshop will allow participants to provide feedback on past projects and offer an opportunity to evaluate the need for reorientation of objectives or activities, revise the schedule, report progress and achievements, and formulate the work plan for the years to come. A specific chapter of the annual review will reflect on lessons learned and recommendations to plan the next phases of the management plan.

#### **6.3.4. Data Monitoring and Evaluation**

This management program will collect, manage, and evaluate the information needed to determine trends in the status of biodiversity conservation within PAWS and trends in the main threats to biodiversity. This program will maintain the ongoing program in biological monitoring based on field monitoring and research. The monitoring of illegal activities that threaten the PAWS values based on routine patrolling and monitoring is also included. For the course of this plan, data collected from field monitoring will be managed by donor technical staff, and supervised by a DNCP counterpart in consultation with a donor technical advisor. In the future, the DNCP should make an effort to effectively manage the monitoring data.

#### **6.3.5. Biodiversity Evaluation**

The research team will maintain the current biological monitoring in PAWS, according to the following schedule.

- The research coordinator will train and use community representatives to assist in the monitoring, in order to build community participation and to keep enough rangers involved in effective routine patrolling; and

- Field monitoring data will be processed and entered into a GIS database within 2 weeks after collection. The GIS/Data manager will be responsible for maintaining the quality of stored data. All data will be shared freely with the GDPA.

#### **6.3.6. Threat Evaluation**

In combination with the biological monitoring program, illegal activities and other threats to biodiversity conservation will be monitored and evaluated based on data from routine patrolling and focused interventions. Data collection on threats will be collected according to a pre-determined standard data format and will be processed and stored according to guidelines similar to those for the management of biological data, under the supervision of the project Data/GIS manager.

#### **6.3.7. Updating Management Plan**

Monitoring data will be analyzed and evaluated at least once per year, preferably during an annual review workshop by PDOE, and reported to MOE. Full monitoring and evaluation will be conducted after year 5 (2026) and this management plan will be updated for next 5 years implementation during year 5.

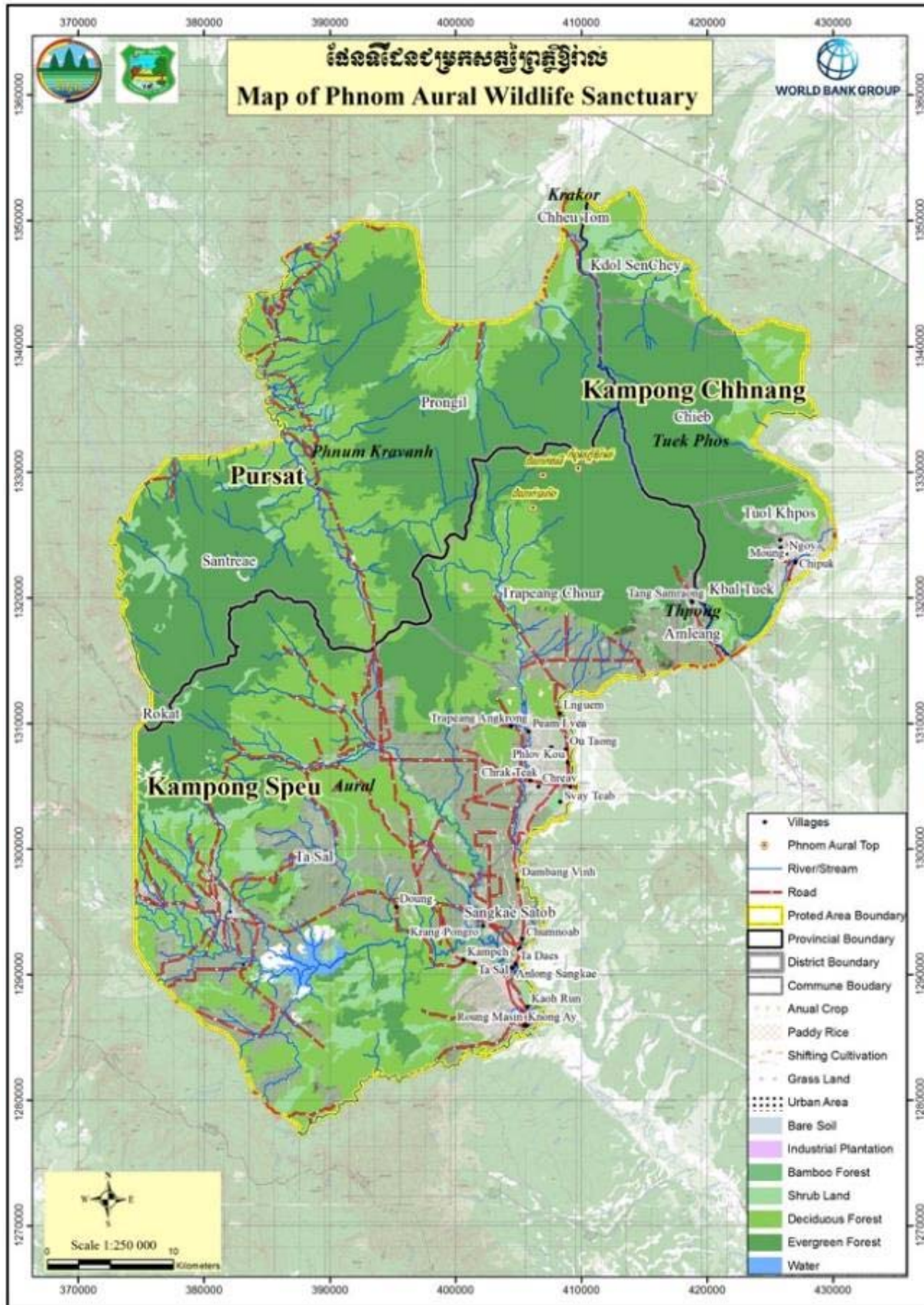
#### **6.4. Management Plan Risk Assessment**

This is 10 year management plan but the budget for this management plan is carried out only for the first 5 years. Approximately 70% of this budget is from the Cambodian Sustainable Ecotourism and Landscape Project and government budget and the rest is based on other partners. Thus, the full successful implementation of this management plan is based on existing government and project budgets, and in case, some activities cannot be financed by the project and government budgets, the implementation risks facing these activities are based on the ability of fundraising and mobilization from other partners and incomes collected.

## 7. References

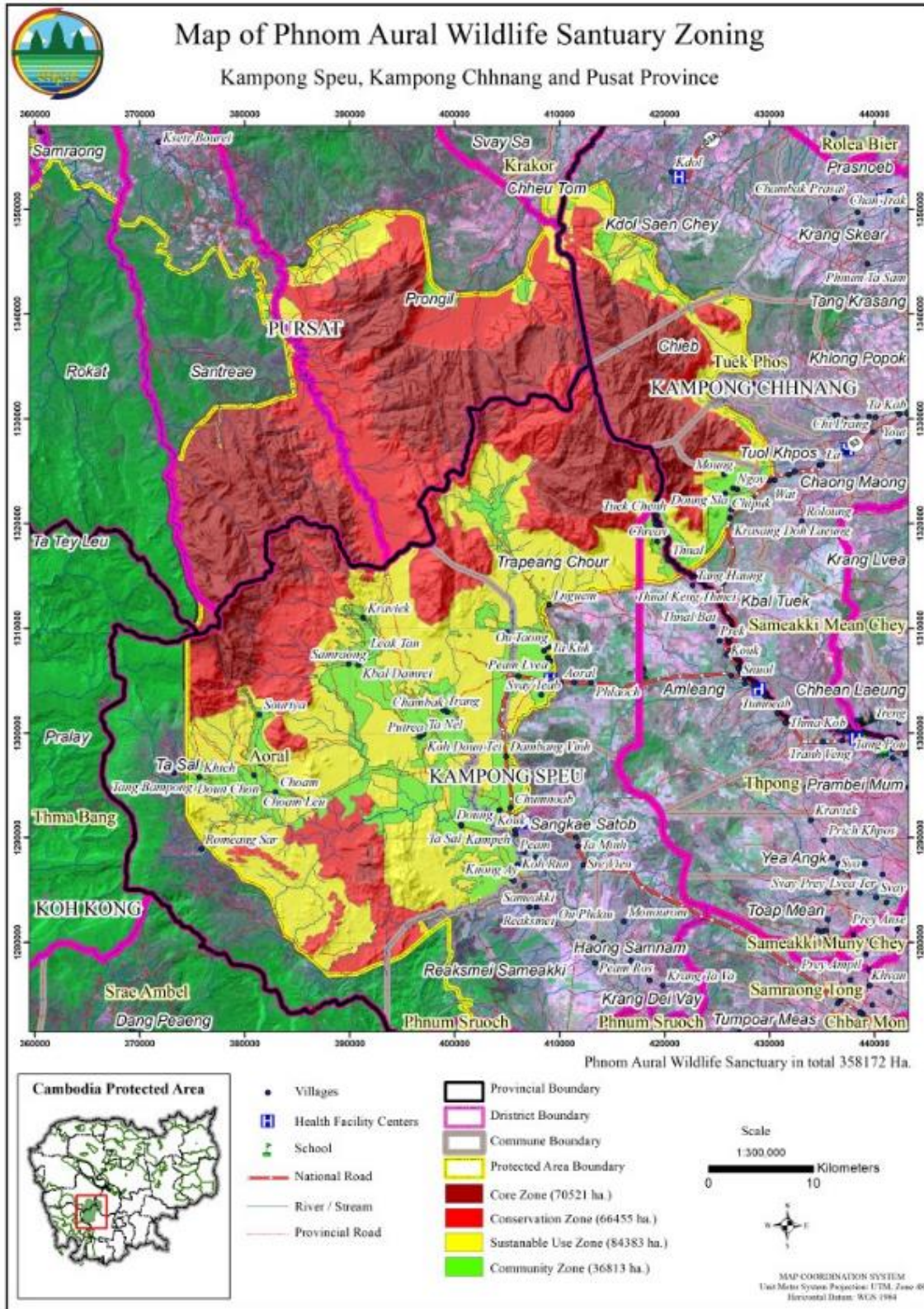
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Annex 1. PAWS base map





## Annex 2. PAWS zoning map



### Annex 3. Summary of Allowable Activities and Facilities for Each Zoning

Activities and Facilities	Core Zone	Conservation Zone	Sustainable Use Zone	Community Zone
Ranger Patrolling	√	√	√	√
Access by Security and Defense Forces	√ <sup>1</sup>	√ <sup>1</sup>	√	√
Trails	√	√	√	√
Research and Monitoring	√ <sup>2</sup>	√	√	√
Road Maintainance		√	√	√
Low impact, guided ecotourism by foot (accompanied by Rangers)	√	√		
Permanent campsites		√	√	√
Garbage Disposal Sites			√	√
Maintained Roads		√	√	√
Ecotourism investments		√	√	√
Spiritual forest		√	√	√
NTFP collection		√	√	√
Ecosystem restoration (supervised by PA management authority)		√	√	
Economic land concession			√	√
Community Protected Areas (CPAs)			√	√
Mining			√	√
Paddy field			√	√
Agricultural lands			√	√
Houses and settlements			√	√

<sup>1</sup> MoE should be notified before these Zones are accessed and any disturbance to natural values should be minimized

<sup>2</sup> Requires permit issued by MoE

#### Annex 4. Summary of 5 Year (2022-2026) Operation Cost

Program/Subprogram/Objective/Indicator	Indicator	Yearly Planning					Budget
		2022	2023	2024	2025	2026	
<b>Program 1: Natural Resource Protection and Conservation</b>							<b>\$ 1,188,500</b>
<b>Objective and Summary of Subprogram</b>							
1.1 Secure PAWS boundaries and management zones							<b>\$ 842,000</b>
Activity 1: Complete demarcation and pole installation in Core and Conservation Zones	-Number of poles in core zone -Number of poles in conservation zone -Number of banning signs in core and conservation zones						\$ 190,000
Activity 2: Complete State Land Registration for Core and Conservation Zones	-Total of land in core zone received hard land titling -Total of land in conservation zone received hard land titling						\$ 600,000
Activity 3: Complete dissemination workshops on Zoning Sub-decree	-Number of participants -Number of workshops -Workshop reports						\$ 20,000
Activity 4: Complete dissemination workshops on Management Plan	-Number of participants -Number of workshops -Workshop reports						\$ 20,000
Activity 5: Monitoring management plan implementation	-Quarterly report -Yearly report						\$ 12,000

Program/Subprogram/Objective/Indicator	Indicator	Yearly Planning					Budget
		2022	2023	2024	2025	2026	
<b>Program 1: Natural Resource Protection and Conservation</b>							<b>\$ 1,188,500</b>
<b>Objective and Summary of Subprogram</b>							
<b>1.2. Invest in law enforcement and threat reduction</b>							<b>\$ 242,500</b>
Activity 1: Law enforcement based on PA law 2008 and other regulations	-Number of illegal activities -Numer of dissemination meetings						\$ 80,000
Activity 2: Development and implementation law enforcement framework	-Develop SMART tool -Implement SMART tool						\$ 20,000
Activity 3: Provide enough facility, equipment and human resources	-Provide one ranger station -Increase number of ranger						\$ 37,500
Activity 4: Ensure enough capacity strenthening for patrolling	Number of ranger trained						\$ 50,000
Activity 5: Coordinate with national, provincial and authority	Number of stakeholder meetings						\$ 30,000
Activity 6: Develop patrolling system and community patrolling	Numver of local community and IP trained						\$ 25,000
<b>1.3. Subprogram 1.3 Promote biodiversity conservation, research and monitoring</b>							<b>\$ 65,000</b>
Activity 1: Wildlife monitoring and evaluation through SMART	Biodiversity reports using SMART						\$ 20,000
Activity 2: Continue the use of camera traps	-Number of camera trap -Number of species captured by camera trap						\$ 30,000
Activity 3: Encourage researchers and students to carry out detailed biodiversity surveys	Number of student participated in research						\$ 15,000
Activity 4: Site assessment for forest restoration through enrichment planting and assist	Size of enrichment planting and ANR						\$ 5,000
Activity 5: Forest restoration	Size of enrichment planting and ANR						\$ 10,000
<b>1.4. Actively prevent forest fires</b>							<b>\$ 39,000</b>
Activity 1: Provide basic training in forest fire prevention and suppression to PAWS Ra	Forest fire report						\$ 12,000
Activity 2: Provide basic training in forest fire prevention and suppression to PAWS Ra	Report on fire management						\$ 5,000
Activity 3: Mobilize and equip local forest fire teams to be able to quickly respond to e	Working group established						\$ 15,000
Activity 4: Develop leaflet and other publication	Leaflet and other communication materials						\$ 7,000



Program/Subprogram/Objective/Indicator	Indicator	Yearly Planning					Budget
		2022	2023	2024	2025	2026	
<b>Program 2: Expand Community Participation and Benefits</b>							<b>\$ 177,000</b>
<b>Objective and Summary of Subprogram 2</b>							
<b>2.1. Subprogram 1: Support local participation in PA management</b>							<b>\$ 45,000</b>
Activity 1: Mapping Non Timber Products	FP and NTFP maps						\$ 5,000
Activity 2: Monitoring and Evaluation the uses of NTFPs	Monitoring and evaluation report						\$ 12,000
Activity 3: Promote NTFP market	Number of buyer and implemented						\$ 15,000
Activity 4: Promote livestock	Numver of local community and IP participated						\$ 6,000
Activity 5: Implement diversify agriculture	Numver of local community and IP participated						\$ 7,000
<b>2.2. Subprogram 2: Facilitate CPA and cultural resource development</b>							<b>\$ 132,000</b>
Activity 1: Prepare publication and communication materials	-Number of participants -Number of dissemination meetings						\$ 12,000
Activity 2: Intergrate into 3 year commune development	Activity plan intergrated and implemented						\$ 35,000
Activity 3: Provide ongoing support to CPA Management Committees	Progress report						\$ 80,000
Activity 4: Share knowledge and lesson learnt with CPA network	Number of study tours						\$ 5,000
<b>Program 3: Promote Ecotourism Development</b>							<b>\$ 137,000</b>
<b>Objective and Summary of Subprogram 3</b>							
<b>3.1. Subprogram 1: Identify oppotunities for ecotourism growth</b>							<b>\$ 70,000</b>
Activity 1: Register existing ecotourism concessions	Number of company registered						\$ 25,000
Activity 2: Identify wildlife and landscape viewing	Wildlife viewing sites identified						\$ 15,000
Activity 3: Identify adventure tourist destination	Number of adventure tourist sites identify						\$ 30,000
<b>3.2. Subprogram 2: Promote locally operated ecotourism services</b>							<b>\$ 67,000</b>
Activity 1: Train local community on ecotourism management and services	-Number of participants -Number of trainings						\$ 20,000
Activity 2: Establish CBET information center	Number of information centers						\$ 12,000
Activity 3: Install ecotourism signs	Number of ecotourism signs						\$ 20,000
Activity 4: Promote pure drinking water system and sanitation	Lengh of water system and sanitation						\$ 15,000

Program/Subprogram/Objective/Indicator	Indicator	Yearly Planning					Budget
		2022	2023	2024	2025	2026	
<b>Program 4: Strengthen Institutional Capacity and Collaboration</b>							<b>\$ 110,000</b>
<b>Objective and Summary of Subprogram 4</b>							
<b>4.1. Subprogram 1: Ensure adequate staff with appropriate capacity and resources</b>							<b>\$ 85,000</b>
Activity 1: Increase rangers	Number of rangers						\$ 25,000
Activity 2: Provide technical and magement trainings to rangers and PAWS staff	-Number of participants -Number of trainings						\$ 25,000
Activity 3: Capacity assessment and training rangers for Phnom Aural WS management plan implementation	-Number of illegal activities -Nuner of case solves						\$ 20,000
Activity 4: Support activity to reduce malaria	Number of malaria cases						\$ 15,000
<b>4.2. Organizational structure for management plan implementation</b>							<b>\$ 25,000</b>
Activity 1: Develop ToRs and organizational structure for PAWS staffing	-Number of participants -Reports of TOR dissemination meetings						\$ 10,000
Activity 2: Establish the PAWS Management Committee	Working group established for implementation						\$ 15,000
<b>Total</b>							<b>\$ 1,612,500</b>



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