

Kingdom of Cambodia

Nation - Religion – King



Management Programme Kulen Mountain National Park 2018-2027



Management Programme- Kulen Mountain National Park 2018-2027

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**Management Programme
Kulen Mountain National Park
2018-2027**



Message

First and foremost, on behalf of the Ministry of Environment, I would like to express my profound respect and sincere gratitude to **Samdech Akka Moha Sena Padei Techo HUN SEN**, Prime Minister of the Kingdom of Cambodia, for his guidance, support and strong commitment on environmental matters and management of protected areas in Cambodia. Under the leadership of **Samdech Akka Moha Sena Padei Techo HUN SEN**, the Kingdom of Cambodia is implementing “**Rectangular Strategy Phase 3**” which emphasizes that natural resource management is one of the key priorities for Cambodia’s Development.

Phnom Kulen National Park Management Programme is one of the strategic management programmes for management of protected areas and biodiversity conservation corridors which presently spans about 41 percent of the total Cambodia’s land area. They are also an important instrument to ensure sustainable conservation, protection and management of forest resources and cultural heritage values that are found at Kulen for the benefits of current and future generations.

Phnom Kulen National Park Management Programme is an important strategic document to strengthen institutional capacities and knowledge to increase the effectiveness of natural resource management and sustainable management of cultural heritage sites through the identification and zoning of the national park, strengthen law enforcement, establishment of eco-tourism areas and expanding livelihood options of local communities. In order to warrant successful implementation of Phnom Kulen National Park Management Programme 2018-2027, on behalf of the Ministry of Environment, I would like to strongly request the continued supports and corporation from local communities, national and international institutions and relevant government and non-government stakeholders.

I would like to once again express my deep gratitude to **Samdech Akka Moha Sena Padei Techo HUN SEN**, Prime Minister of the Kingdom of Cambodia, and appreciation to Excellencies, ladies and gentlemen from line departments, academies, NGOs, local communities and development partners for the good cooperation and support in the preparation and completion of the Phnom Kulen National Park Management Program which will contribute to environmental and natural resources management efforts in Cambodia.

Phnom Penh,27 October, 2017.....

Say Sam Al
Minister of Environment

Foreward

Implementation of the strategic win-win policies envisioned by **Samdech Akka Moha Sena Padei Techo HUN SEN**, Prime Minister of the Kingdom of Cambodia has resulted in the dissolution of the Khmer Rouge political and military organizations at the end of 1998 which subsequently transformed Cambodia from a state of chronic war to a country of peace, unity, sovereignty, and development in all sectors. Under this peaceful atmosphere, the Kingdom of Cambodia has ample opportunity to organize its work to safeguard natural resources and conserve its biodiversity. At present, 41 percent of the Kingdom of Cambodia's total land area consists of protected areas and biodiversity conservation corridors. These include: 12 National Parks, 18 Wildlife Sanctuaries, 8 Protected Landscapes, 5 Multiple Use Areas, 4 Ramsar Sites, 1 Natural Heritage Site, and 3 Biodiversity Conservation Corridors. Phnom Kulen covering an area of 37,500 hectares is a national park that contains cultural heritage and natural resources. Historically, Phnom Kulen is believed to have been the birthplace of the Khmer Empire, where Jayavarman II had ascended to the throne in this area. It is also regarded as a sacred area for the people of Cambodia. This national park contains excellent forest ecosystem that is home to many of the world's endangered species. Water from Kulen also serves as the main source of water for Siem Reap and helps maintain the bases of Angkor temples. Based on these potentials, the Kulen Mountain National Park has attracted many national and international tourists to visit and explore the civilization, culture and natural resources. Expansion of socio-economic development has negatively resulted in the reduction of natural resources and forest cover in the national park.

Based on the concerns and recommendations of **H.E. Say Sam AI**, Minister of Environment, the General Directorate of Administration for Nature Conservation and Protection (GDANCP) serving as the Ministry's secretariat responsible for management of protected areas has been paying particular attention on law enforcement and implementation of government policies. In particular, GDANCP is working hard to contribute to sustainable development in Cambodia based on this vision **Conservation for Development and Development with Conservation in mind**. This means that to ensure the balance of natural resources conservation and enhancing livelihood of local communities, development of the Phnom Kulen National Park Management Programme is essential. This management program serves as the roadmap for relevant stakeholders at national and sub-national level to participate in its implementation with the goal of achieving sustainable development and conservation of protected areas in Cambodia.

To achieve the aspiration mentioned above, Phnom Kulen National Park Management Programme for the period of 10 years (2018-2027) was developed by the Technical Working Group of the Ministry of Environment in collaboration with the United Nations Development Programme (UNDP) and relevant stakeholders at sub-national level with the goal of reducing deforestation and forest degradation, improving livelihood options of local communities, ensuring environmental sustainability, and conserving natural resources and cultural heritage values within Kulen national park. The Kulen National Park management programme outlines four strategic programme areas (SPAs): SPA1: Strengthen Natural/ Cultural Resources Conservation and Protection, SPA2: Expand Community Participation and Benefits, SPA3: Strengthen Institutional Capacity and Collaboration, SPA4: Secure Sustainable Financing for Kulen National Park.

The four strategic programme areas were developed as a result of a series of consultative meetings with stakeholders at national and sub-national level. This will ensure that these strategic programme areas are coherent and aligned with other existing sectoral plans of the

line ministries and agencies. This comprehensive stakeholder consultations will ensure that Kulen National Park management programme will be implemented transparently, effectively, and efficiently. It will also provide a vision for the biodiversity conservation and management of natural resources within national park for the benefits of society, environment, economics, and culture.

In that context, on behalf of the General Directorate of Administration for Nature Conservation and Protection (GDANCP) and the Kulen Technical Working Group, I would like to sincerely thank H.E Say Sam Al, Minister of Environment for his continued supports, guidance and attention on environmental matters and management of protected areas. I would also like to thank his excellencies, her excellencies, ladies and gentlemen from the Ministry of Environment and line ministries, development partners, civil society organizations, academic institutions, private sectors, local communities and other relevant stakeholders for their participation and excellent collaboration in the process to develop the management programme. I strongly hope that relevant stakeholders will continue to support and collaborate to successfully implement this management programme so as to contribute to conservation of the prestige of Kulen's natural resources and cultural heritage values.

Phnom Penh,17 October, 2017.....

Chea Sam Ang
Director General, GDANCP

Acknowledgement

The Ministry of Environment would like to sincerely thank government institutions at national and sub-national level, development partners, civil society organizations, academia, private sector, and relevant stakeholders for their mutual collaboration in preparing the Phnom Kulen National Park under the guidance of the chair of the Technical Working Group, which include the following members:

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2	H.E. Kim Chhaiheng	Vice-Chair	Provincial Hall
3	Mr. Seng Soth	Vice-Chair	Ministry of Environment
4	H.E. Dr. Ken Serey Rotha	Member	National Council for Sustainable Development
5	H.E. Kim Nong	Member	Ministry of Environment
6	H.E. Hem Socheth	Member	Ministry of Environment
7	H.E. Prom Suonprasith	Member	Cambodia Mine Action Center
8	Dr. Heng Sophady	Member	Ministry of Culture and Fine Arts
9	Dr. Kum Veasna	Member	Ministry of Environment
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11	Dr. Lao Kimleang	Member	Sofia University
12	Mr. Chuk Chumno	Member	Ministry of Tourism
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14	Mr. Heng Kimleng	Member	APSARA Authority
15	Mr. Horn Ritha	Member	Ministry of Culture and Fine Arts
16	Mr. Huy Chivith	Member	Ministry of Rural Development
17	Mr. Eav Sambath	Member	Ministry of Rural Development
18	Mr. Noun Mony	Member	Provincial Department of Environment
19	Mr. So Sun	Member	Banteay Srey Commune
20	Mr. Nak Narun	Member	Varin Commune
21	Mr. Sek Bunsin	Member	Svay Leur Commune
22	Mr. Meas Sothunvathanak	Member	Ministry of Environment (GDLC)
23	Mr. Morn Samarth	Member	Provincial Hall
24	Mr. Lok Sokleng	Member	APSARA Authority
25	Mr. Sorn Chanthorn	Member	APSARA Authority
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Abbreviations

ACCB	Angkor Center for Conservation of Biodiversity
ADF	Archaeology and Development Foundation
APAs	Archaeological Protected Areas
APSARA	APSARA Authority
CMAC	Cambodia Mine Action Center
CPAs	Community Protected Areas
FA	Forestry Administration
GDANCP	General Directorate of Administration for Nature Conservation and Protection
GDEKI	General Directorate of Environmental Knowledge and Information
GDLC	General Directorate of Local Community
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
LIDAR	Light Imaging Detection and Ranging
ha	hectare
IUCN	International Union for the Conservation of Nature and Natural Resources
MAFF	Ministry of Agriculture, Forestry and Fisheries
MEF	Ministry of Economy and Finance
MoE	Ministry of Environment
MoT	Ministry of Tourism
MoU	Memorandum of Understanding
NCSD	National Council for Sustainable Development
NCSD-S	General Secretariat of the National Council for Sustainable Development
NGO	Non-Governmental Organization
NPASMP	National Protected Area Strategic Management Plan
NTFPs	Non-Timber Forest Products
PA	Protected Area
PDoe	Provincial Department of Environment
PKNP	Phnom Kulen National Park
PES	Payment for Environmental Services
PMC	Park Management Committee
REDD+	Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management and enhancement of forest carbon stocks
RGC	Royal Government of Cambodia
SMART	Spatial Monitoring and Reporting Tool
SO	Strategic Objective
USD	US Dollars



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Executive Summary

Phnom Kulen National Park (PKNP) is well known for its history, its cultural heritage sites, and its importance as a water source for the Siem Reap Province. A popular place of pilgrimage, this “Mountain of Lychees” is considered by Khmers to be the most sacred mountain in Cambodia and the birthplace of the Cambodian Kingdom. More than 50 sacred ancient temples and sites dating back as far as the Eighth and Ninth Century have been identified across the high plateau of Kulen Mountain. The large waterfalls, the Wat Preah Ang Thom with its giant, reclining Buddha statue, the River of the “One Thousand *Lingas*”, and the Kbal Spean archaeological site attract hundreds of visitors a day, even thousands during annual celebrations.

PKNP’s forest ecosystems, though fragmented at many sites, provide critical habitat for a number of globally threatened species. The significant ecosystem services provided by the Park center on the vital role this largest forested area within Siem Reap Province plays as the main water source for Siem Reap town and the aquifer that maintains the stability of the Temples of Angkor. All of the 36 headwaters of the Siem Reap River are located inside PKNP. During the dry season, forests act as a sponge to retain water and re-charge ground water tables. Forest cover in PKNP has decreased significantly over the past decade, from about 42% in 2003 to as low as 25% presently. If this trend is allowed to continue, the natural forests of PKNP may completely disappear within the next 5-10 years.

Most of the recent deforestation is caused by local agriculture practices, an ever-increasing population within the Park, and illegal encroachments (including logging) on the remaining forest. Significant in-migration has occurred in recent years largely as a result of tourism development. The traditional practise of shifting cultivation (*Chamkar*) for growing rain-fed upland rice and other crops is being quickly replaced by permanent plantations of cashew nut trees converting additional forested areas to agriculture areas. Illegal logging for luxury timber, round wood for brick factories, and fuel wood for charcoal kilns continues despite the presence of MoE Rangers, APSARA Guards, Heritage Police and local Police in the Park. A contributing factor is the lack of zoning that would help clarify where in the Park specific land uses would be permitted.

Tourism volume in PKNP is largely unregulated and the resulting problems of overcrowding, damage to vulnerable archaeological sites, littering and pollution not only affect the visitor experience but also tends to gradually wear down the Park’s infrastructure. At present, very little (if any) of the revenue collected by a private tourism concession charging access fees to the Preah Ang Thom site is invested in the protection and management of PKNP. Furthermore, traditional villages located in more remote areas of the Park do not receive any substantial benefits from the present tourism flow. The overall authority for management of the PKNP lies with MoE and its implementing agencies (GDANCP and GDLC) in collaboration with provincial and local authorities. The APSARA Authority, under the Ministry of Culture and Fine Arts, is in charge of protecting and managing the archaeological sites in PKNP. However, there is a general lack of collaboration and clarity on their respective roles in the future management of PKNP, particularly as it relates to the development and maintenance of tourism facilities.

The downstream impacts of the depletion of forests in PKNP have the potential to severely affect the future development potential of Siem Reap Province and threaten the foundations of the Angkor World Heritage Site. It follows that the protection, restoration and maintenance of these forests and water sources must be a management priority for PKNP.

The PKNP Management Program (2018-2027) focuses on protection of the remaining forests, conservation of cultural heritage sites, enhancing and sustaining alternative livelihoods, and strengthening institutional capacity and collaboration to effectively manage the Park for future generations, based on the vision to protect and sustainably manage the natural and cultural heritage values of the PKNP in active partnership with local communities and other stakeholders for the benefit of all Cambodians. The mission for this Management Plan is to strengthen functioning and capacity of national and sub-national institutions for effective implementation of policies, laws and regulations that enhance management of natural and cultural resources in PKNP. The Management Program has four strategic program areas:

- Program 1.** Strengthen Natural/Cultural Resources Protection and Conservation
- Program 2.** Expand Community Participation and Benefits
- Program 3.** Strengthen Institutional Capacity and Collaboration
- Program 4.** Secure Sustainable Financing for PKNP

The demarcation of the outer boundaries of PKNP will be completed and large signs deployed at main access roads into the Park. Zoning inside the Park will include 4 zones: Core Zone, Conservation Zone, Community Zone, and Sustainable Use Zone as per the PA Law (2008). The Core Zone will cover most of the remaining natural forest on the mountain and be strictly protected with limited access. The Conservation Zone will be used as a “buffer” to the Core Zone and include the existing Community Protected Areas (CPAs) and Archaeological Protected Areas (APAs), as well as areas for local subsistence harvest of natural resources. Opportunities to identify additional CPAs and APAs will be explored. The Community Zone will include the traditional villages on Kulen Mountain and their cultivated lands – communal title will be considered for these villages. The Sustainable Use Zone will include areas for small-scale commercial use (including cashew plantations) and the tourism corridors used to channel visitors to the Kbal Spean and Preah Ang Thom sites.

Relocation will be offered for up to 415 families living in the new villages that have been recently established in the Preah Ang Thom area and along the access road leading to the Preah Ang Thom site. A 175-hectare area outside the Park has been identified by the Provincial Government where relocated families will be provided with land title, houses and basic services. Prior to relocation, the provincial authority will ensure that access to basic services and infrastructure is available. A population census is necessary to clearly establish the numbers, locations and length of residency of families currently living inside the Park.

Forest protection, restoration and maintenance will be done by substantially strengthening law enforcement capacity; encouraging natural regeneration in degraded areas adjacent to existing forests; and, by investing in reforestation and maintenance using native species at key priority sites. At least 1,000 ha of land will be reforested by 2022. Reforestation activities supported by other projects within the park will be encouraged, such as the Adaptation Fund Project. As part of this sub-programme, the integrity of water sources on the mountain will also be safeguarded.

Wildlife conservation efforts will be promoted to enhance the knowledge base, reduce the incidences of illegal hunting, and explore opportunities for re-introductions of native species.

Cultural heritage sites will be monitored and protected in close collaboration with the APSARA Authority and the Archaeology and Development Foundation (ADF). The management and potential expansion of Archaeological Protected Areas (APAs), where appropriate, will be supported. Where necessary, protection zones around temples can be established by the APSARA Authority based on existing regulations to prevent further encroachments or damage to important cultural heritage sites.

Priority for community engagement and support will be provided to the 5 original villages in Khnang Phnum Commune (Anlong Thom, Ta Penh, Sangke Lak, Khla Khmum, and Thmor Chruogn) and their associated CPAs. Participatory planning will be done to refine the boundaries of the proposed management zones (particularly the Community Zones); increase understanding of laws and regulations associated with traditional resource uses in PKNP; and, explore opportunities for joint patrolling with Rangers, participation in forest restoration activities, and in tourism development. Continued support for the existing CPAs will include assistance in completing simple CPA Management Plans and integrating these into Commune Investment Plans. A local Park Management Committee will be established to collaboratively implement management programs on the ground.

Efforts will be made to progressively shift away from “slash and burn” agricultural practices and reduce the dependence on cashew nut plantations by introducing new agro-forest methods that can provide more diverse, profitable and environmentally friendly products. Work done by the ADF with local farmers to reduce their impacts on the forest by shifting traditional agricultural practices to high yielding activities will be supported and expanded. Local communities will also be more directly involved in reforestation, restoration and maintenance activities (including establishment and maintenance of forest nurseries).

A Tourism Management Strategy will be prepared by MoE in collaboration with local communities, provincial and local authorities, the APSARA Authority, the Ministry of Culture and Fine Arts, and the Ministry of Tourism to improve visitor experiences and facilities in PKNP. The Strategy will consider requirements for both “general” tourism focused on visiting cultural attractions in the Park and locally operated eco-tourism. Provincial authority will coordinate, register and monitor tour operators to ensure safety for national and international tourists. The Strategy will include developing interpretive materials (brochures/maps/ information center), facilities and signage; and, training local villagers to be more actively involved in, and benefit from, tourism. The private tourism concession will be transferred to MoE and revenues from entry fees will be reinvested in the management and protection of Kulen National Park. Waste management will be addressed by providing adequate facilities for disposing of, and removing, both solid and liquid waste generated in the Park.

In addition to substantially strengthening law enforcement capacity (through training and equipment upgrades), both Rangers and authorities at Provincial, District and Commune levels will receive targeted training in participatory methods for engaging local communities in protected area planning and management. The technical capacity of the Provincial Department of Environment will be enhanced in order to provide the oversight, support and monitoring required for implementing the PKNP Management Program. Consideration will also be given to increasing the current number of Rangers to effectively manage new responsibilities that will come with the transfer of the private tourism concession to the MoE.

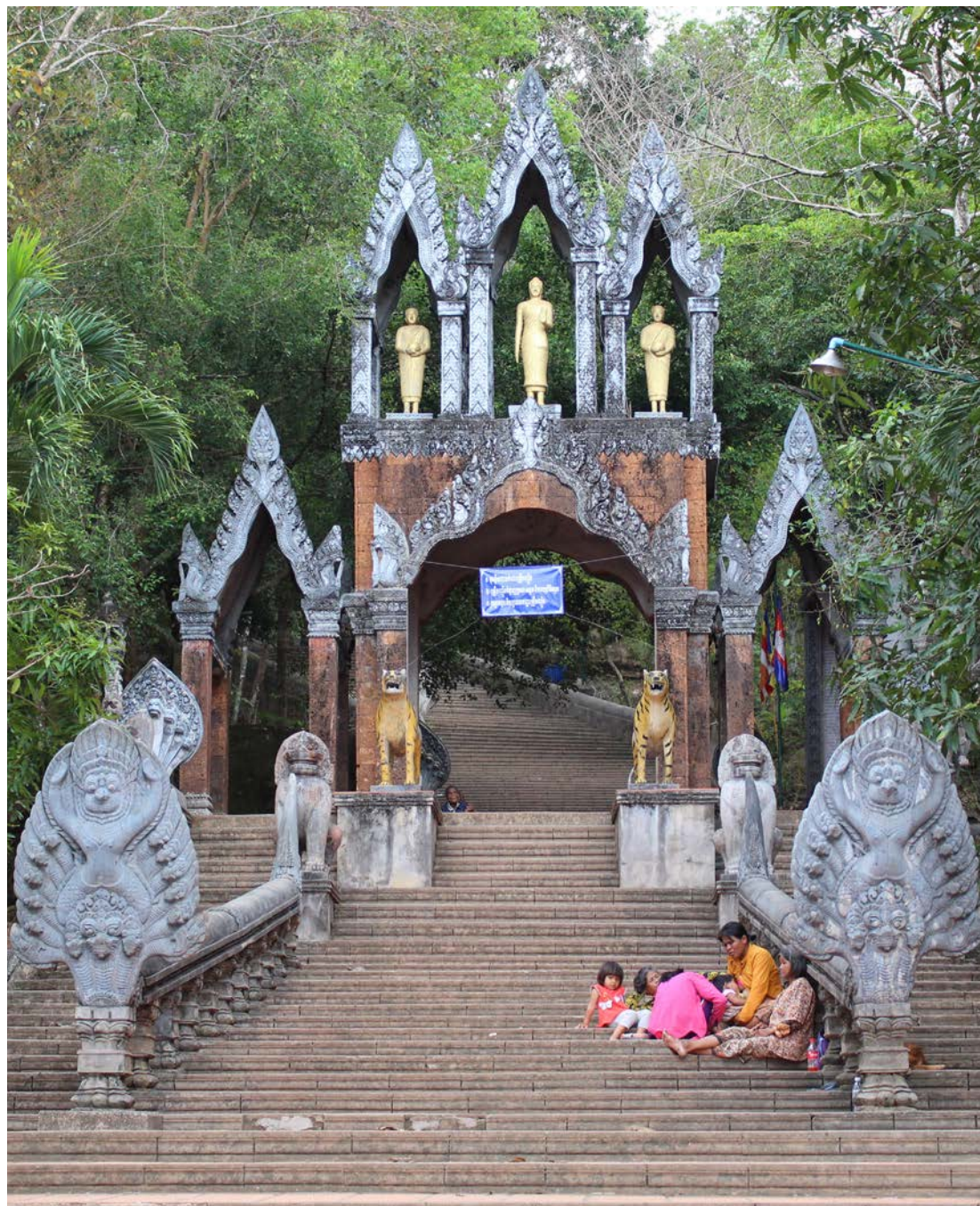
Close collaboration with the APSARA Authority, the Forestry Administration (FA-MAFF) as well as conservation organizations that have been working in PKNP for many years (ADF and ACCB) will be essential while implementing different parts of the Management Program. A full assessment of the watershed values of PKNP and its economic value to Siem Reap Province is recommended to fully understand the natural values of the Park, as well as the consequences and costs of failing to protect this vital resource.

The estimated cost of implementing the PKNP Management Program over the next 5 years (2018-2022) is about USD 2.8 million over and beyond the existing government budget for PKNP that largely covers salaries of Rangers and basic operating expenditures. Over 50% of

the estimated program costs are allocated to reforestation and maintenance activities to progressively restore the natural forest cover in PKNP. A diversified set of financing sources will be required to sustain investments in PKNP, including a dedicated budget account for the Park, revenues from visitor fees that can be directly reinvested in Park management, research and design of additional innovative financing schemes that capture the watershed values of PKNP, and continued support from development partners.

Implementation of the PKNP Management Program will be overseen and facilitated by the Kulen Working Group and executed by the local Park Management Committee. Monitoring of implementation progress will be done annually by the Provincial Department of Environment and reported to MoE. A full review will be done after 5 years (2022) at which time the Plan will be revised, as necessary, and renewed for another 5-year period.





Management Programme

Kulen Mountain National Park

2018-2027

1. Introduction

Phnom Kulen (“Kulen Mountain”) was originally designated as a National Park in 1993 and in 2003 the Ministry of Environment (MoE) produced an official map where the total area of the Park covers 37,375 hectares (ha). Surrounded by the flat floodplain of Tonle Sap Lake, the sandstone massif of Kulen Mountain reaches a maximum elevation of 498 meters above sea level. The area of the Park is located in 3 Districts (Svay Leu, Banteay Srey and Varin Districts) of Siem Reap Province, about 48 km from the provincial town of Siem Reap. Considered by Khmers to be the most sacred mountain in Cambodia, Phnom Kulen is a popular place of pilgrimage on weekends and during festivals. It played a significant role in the history of the Khmer empire, as it was from here in AD 802 that Jayavarman II proclaimed himself a *devaraja* (god-king), giving birth to the Cambodian Kingdom. Phnom Kulen was also a stronghold for the Khmer Rouge who left the area in 1998.

This Programme seeks to guide the protection, management and sustainable use of the Phnom Kulen National Park (PKNP) over the next 5 years (2018-2022). This Management Program was initiated by **H.E. Say Sam AI, Minister of Environment** and has been prepared under the oversight and supervision of the PKNP Working Group formally established in October 2016 and chaired by the Director General of the General Directorate of Administration for Nature Conservation and Protection (GDANCP). The Working Group includes 31 members representing government ministries and relevant authorities, academia and civil society organizations. The main objective of the PKNP Working Group is to develop a strategic management program to conserve natural resources, protect cultural heritage resources, and enhance local community livelihoods in the PKNP area.

2. Description of Phnom Kulen National Park (PKNP)

2.1 Natural values

PKNP is considered of high conservation value on a national level based on three main aspects: critical ecological attributes, ecosystem services and social functions (Hayes et al., 2013). The majority of the forest cover is made up of evergreen and semi evergreen forest, combined with small patches of deciduous dipterocarp forest. In terms of vegetation, PKNP is one of the few remaining evergreen forest areas in the northern region of Cambodia. PKNP contains 10 out of 40 Cambodian threatened plant species on the IUCN Red list. The lychee tree species (*Litchi chinensis*) inhabits only this area and has given its name for this mountain.

To date, biodiversity surveys in PKNP have confirmed a total of 28 IUCN listed species of global international concern. The forest ecosystems of the PKNP, even though fragmented at many sites, provides critical habitat for these species at risk and could serve as a gene pool for biodiversity conservation. Ten out of 32 timber species listed on the IUCN Red List are present within the park, and most of these are very rare because of illegal logging activities in past and recent years. In terms of fauna, diversity of amphibians and reptiles is particularly rich as is the diversity of bats - with 25 recorded bat species. PKNP contains nearly 40% of Cambodia’s known bat species (25 of 68 species) and few other sites in the country are known to have a higher bat diversity (Hayes et al., 2013).

The significant ecosystem services provided by PKNP center on the vital role this sandstone massif and associated forests play as the main water source for Siem Reap town and the aquifer that maintains the stability of the Temples of Angkor. All of the 36 headwaters of the Siem Reap River are located inside PKNP. During the dry season, forests act as a sponge to retain water and re-charge ground water tables. PKNP is still the largest forested area within Siem Reap Province and critical for providing year round water through above-ground rivers and streams, as well as the underground water table. The Stung Siem Reap Watershed was considered one of four top priority watersheds in Cambodia under the MRC-GTZ Watershed Management Project (Kalyan et al., 2004). Water flowing from PKNP is considered holy and is thought to bless the waterways of Cambodia, including the Tonle Sap Lake.

Economically, the forest ecosystem of the PKNP provides exceptional value to local residents through ecotourism development and natural resource extraction for either subsistence uses or limited commercial trade in non-timber forest products (such as medicinal and aromatic plants, wild fruits, and resin).

Forest cover in PKNP has decreased significantly over the past decade. In recent years, forest cover has been estimated as a) 22% of the Park based on aerial ortho-photography; b) 25% based on remote sensing and ground truthing (Hayes et al., 2013); and, c) 35% by the Remote Sensing for Environment of the Angkor Site (Peou et al., 2016) which included cashew nut plantations as “forests”. The remainder of PKNP has been converted to agricultural lands (Annex 1).

2.2 Cultural values

Phnom Kulen has always been of great archaeological, cultural, and religious significance and, today, remains an important pilgrimage site for Cambodian people. The large waterfall, the Wat Preah Ang Thom with its giant, reclining Buddha statue, the River of the “One Thousand Lingas” and the Kbal Spean archaeological site attract hundreds of visitors a day, even thousands during annual celebrations. Near the top of the waterfall is a jungle-clad temple known as Prasat Krol Romeas, dating from the 12th century. The Prasat Rong Chen represents the prototype of the pyramid or temple-mountain to be constructed in the Angkor area. In a more remote area are the giant stone animals or guardians of the mountain, known as Srah Damrei (Elephant Pond).

ADF has revealed the existence of a wealth of pre-angkorian archeological sites on the top of the eastern plateau of Kulen Mountain, which represents one of the biggest archeological discoveries in Cambodia in the last 50 years. Using airborne laser scanning (LIDAR) technology, over 50 sacred ancient temples and sites in various states of conservation and an urban network dating back as far as the Ninth Century have been identified across the high plateau of Kulen Mountain (Evans et al., 2013). In 1992, the Royal Government of Cambodia registered the Kulen Mountain on the Indicative List of future World Heritage Sites. In December 2012, UNESCO recommended that Phnom Kulen be considered for inclusion in the Angkor World Heritage Site (Phnom Penh Post 2016).

2.3 Population and land uses

Significant in-migration has occurred in recent years and it is believed that up to 2,000 families (or, over 8,000 people) may now be living within the Park boundaries with about half of this population living on the Kulen plateau itself (S. Sakhan, Deputy Park Manager, pers. comm.). The most significant population increases have occurred around the tourism development areas

managed by the Norkor Kok Thlok Company¹. For example, at least 218 families now live in Preah Ang Thom (near the waterfalls) where only 29 families lived in 2002 (Wildlife Alliance, 2013). There are no official land titles for any of the villages or land uses currently occurring in PKNP.

There are two main areas of the Park where the local population is concentrated: on the eastern plateau (Khnang Phnum Commune) where nine villages are recognized by Commune authorities; and along Road #67 (Khun Ream Commune) where there is one village (Khna Rongveas) located close to Kbal Spean. Of the nine villages recognized on the eastern plateau, five villages are considered “traditional” (Anlong Thom, Ta Penh, Sangke Lak, Khla Khmum, and Thmor Chruogn) where 572 families (2,812 individuals) were reported living in April 2017 according to the data from the Ministry of Interior (Table 1). The remaining four villages have been established in the past 15 years (Popel, Preah Ang Thom, Phum Thmey, and Ta Han) and now include at least 418 families (1,753 individuals).

Table 1. Population data for villages on the eastern plateau of PKNP.

Village	Number of families	Total population
A. Khnang Phnum Commune – old villages		
1. Anlong Thom	218	1,142
2. Ta Penh	127	607
3. Sangke Lak	87	413
4. Khla Khmum	68	310
5. Thmor Chruogn	72	340
Subtotal	572	2,812
B. Khnang Phnum Commune – new villages		
1. Popel	97	412
2. Preah Ang Thom	217	853
3. Phum Thmey	51	255
4. Ta Han	53	233
Subtotal	418	1,753
TOTAL	990	4,565

Source: Ministry of Interior (April 2017)

Recent population data for Khna Rongveas (along Road #67) were not available but at least 718 families were believed to be living there in January 2013 (Wildlife Alliance, 2013). The total population currently living within PKNP is, therefore, at least 1,690 families.

Aside from Preah Ang Thom where most residents are involved in providing goods and services to visiting tourists, most of the villagers living in PKNP are subsistence farmers growing rain-fed upland rice, supplemented by cassava, sweet potatoes, beans, and other crops. They still practice shifting cultivation/rotation farming (Chamkar), clearing and burning plots of land, farming for one year, then abandoning it back to the forest for about 10 years. Normally, each household is provided 5 plots over 3 ha for this shifting cultivation. Since 2005, many plots used for rice production have been converted to permanent plantations of cashew nut trees and, to a lesser extent, to banana tree plantations. This new agricultural practise has intensified in recent years to

¹ The Company name has recently been changed to Asiana Travel (based at the City Angkor Hotel in Siem Reap) although staff at the toll gate still wear the Norkor Kok Thlok logo.

the point where forested lands in large parts of the eastern plateau have now been converted to permanent cashew plantations. There are currently no data on the size (or ownership) of the cultivated lands within PKNP.

Families from villages located outside PKNP are also involved in shifting cultivation and establishing more cashew plantations inside the Park. Wildlife Alliance (2013) estimated that over 150 families from outside the Park were involved in these practises.

There are currently five Community Protected Areas (CPAs), totaling 923 ha (each ranging in size from 77 ha to 306 ha) on the eastern plateau (Table 2). These areas are under the direct management and protection by the local communities who collect non-timber forest products (NTFPs) from these areas according to their customary rules. The CPAs are essential for the livelihoods of these local communities and provide locations for harvesting NTFPs such as wild lychees (*Litchi chinensis*), the main forest product sold locally as a cash crop. Lychee trees are collectively protected, but the fruits are harvested and sold by each family.

Table 2. List and size of CPAs located in PKNP.

Name of CPA	Village	Number of families involved	Size (ha)
1. Prey Phnom Kduoch	Sangke Lak	63	77
2. Prey Phnom Mneas	Ta Penh	99	82
3. Prey Thom	Anlong Thom	158	270
4. Prey Thom Popel	Popel	59	188
5. Chop Tasok	Khla Khmum	48	306
Totals		427	923

ADF has worked with local communities and APSARA Authority to establish five **Archaeological Protected Areas (APAs)** covering a total area of 800 ha, 469 poles were demarcated, containing 119 archaeological sites (Annex 1). The APAs provide a buffer around historical sites by allowing the natural forest to regrow and provide protection to the sites from harsh weather, erosion and damaging agricultural practices. The APAs were recognized officially in May 2015 by MoE, the APSARA Authority and the Siem Reap Provincial Government, and are regularly patrolled by APSARA workers.

2.4 Institutional roles

MoE is overall responsible for the management of PKNP through its implementing agencies: the GDANCP and the newly established General Directorate for Local Community (GDLC). At the provincial level, the Provincial Department of Environment (PDoE) based in Siem Reap works with local authorities (Districts/Communes) to implement directives and management actions coming from MoE and the Provincial Governor's office. As part of recent decentralization reforms, provincial and local authorities have been given increased responsibilities for implementing a number of environmental initiatives in areas such as waste management and the conservation and sustainable use of protected areas. The PKNP staff report directly to the PDoE.

The APSARA Authority as part of the Ministry of Culture and Fine Arts is in charge of managing the Angkor World Heritage Site and the archaeological sites within Siem Reap Province, including those located in PKNP. Currently, APSARA has assigned 3 archaeologists and 47 workers to cover the archaeological sites in PKNP. The Kbal Spean also called "Valley of the 1,000 Lingas" is managed by the APSARA Authority and entry requires showing a valid Angkor Ticket. A separate

and similar site is located on the Kulen plateau.

The Forestry Administration (FA) of the Ministry of Agriculture, Forestry and Fisheries (MAFF) is responsible for forest management outside of protected areas and operates a number of reforestation programs and nurseries in Siem Reap Province. FA also administered the forests adjacent to the northwestern part of PKNP that has recently been transferred to MoE as part of the Biodiversity Conservation Corridor initiative approved by the Royal Government of Cambodia (RGC, Sub-decree #07). This area includes the Changkran Roy Community Forest and provides an important link to PKNP with a large (9,544 ha) area of high remaining forest cover.

ADF has been recognized as an International NGO by the RGC. The Foundation has worked in PKNP since 2008 in close relationship with a number of partners, particularly with the APSARA Authority under an existing Memorandum of Understanding (MoU). In addition to establishing the APAs and continuing archaeological research, ADF also aims to strengthen civil society and reduce poverty by focusing on four themes: nutritional health; alternative livelihood and income generation; education; and, environmental protection.

The Angkor Centre for Conservation of Biodiversity (ACCB) has operated a captive wildlife breeding and rescue center at Kbal Spean since 2003 on land that was previously used by FA as a tree nursery. ACCB has a MoU with MoE to provide wildlife rescue services but also provide environmental awareness raising and interpretive tours of the facility to both schools and visitors. ACCB has also provided short training for Rangers on using the Spatial Monitoring and Reporting Tool (SMART) for patrolling and on wildlife handling.

2.5 Park and Tourism facilities

The Park Station (Headquarters) are located near Kbal Spean and along Road 67 that runs through the Park and bisects the Mount Kulen plateau. A total of 48 Rangers are dispersed over 7 sub-stations adjacent to, and in, the Park. There are no organized interpretive facilities at the main Park station and there are no billboards or signs posted along the access roads to make visitors aware that they are entering a National Park.

In 1998, the RGC signed over an area of 2,400 ha located in Preah Ang Thom to be under the management and development of the Norkor Kok Thlok Company based on a request made by the commander of Military Region 4. The Company developed the road access up to the mountain that allows vehicles to reach the main tourism sites near the waterfalls. In return, the Company charges an entrance fee of USD 20 for foreign tourists.

There are no official records available on the number of visitors that use PKNP. In 2012, the Company reported that about 50,000 visitors passed through the tollgate (ADF, pers. comm.). Visitation rates during the dry season (Nov. to May) are believed to average around 150 tourists per day with much higher rates during weekends and public holidays. For example, 15,000 visitors were reported recently during just one day of the Khmer New Year (Fresh News Asia, 16 April 2017). Total revenues from entrance fees are estimated at about USD 200,000+ per year. Neither the nature of the contract nor the annual revenues are publically available. There are a large number of restaurants and food/shopping stalls located around the parking area at the base of Wat Preah Ang Thom and the waterfalls.

The other part of PKNP commonly visited by tourists is the archaeological sites of Kbal Spean that include the “Valley of the 1000 Lingas”. Adjacent to the Kbal Spean entrance is the captive wildlife facility operated by ACCB. There are daily interpretive tours of this facility where visitors can pay by donation. In addition, ACCB has a small training center where visitors, schools and other

groups are provided with further information on the wildlife species kept at the facility and other conservation programs that ACCB is engaged in.

A small number of tour companies offer eco-tourism opportunities in PKNP, including hiking, mountain biking and wildlife viewing². ADF has helped villagers develop homestay facilities; currently, four families are operating homestays in Anlong Thom village.



² One example is the Phnom Kulen Langur Trail through the Prey Thom Popel CPA – a guided wildlife viewing tour offered by Indochineex Adventures (<http://www.indochineex.com/phnom-kulen-langur-trail/>) or Terre CamBodge

3. Issues and Management Challenges

3.1 Forest degradation and loss

Most of the deforestation in PKNP has occurred over the last decade and recent reports suggest that, if this trend is allowed to continue, the natural forests of PKNP may completely disappear within the next few years. There are now only two sizeable areas of forest left in the Park, on the western plateau and on parts of the adjacent eastern plateau. The central valley dividing the Kulen plateau around Phnom Hop has been completely cleared and deforested (Annex 1). Immediate actions need to be taken to protect and restore the degraded forest around Phnom Hop.

Most of the recent deforestation is caused by local agriculture practices and an ever-increasing population within and around the park encroaching on the remaining forest. Many plots used for rice production have been converted to permanent plantations of cashew nut trees. As these are maintained by removing any new vegetation using brush cutters, there is little chance of regenerating forests or natural vegetation cover on these sites. Villagers are then forced to clear new patches of forest for shifting cultivation.

Like many forests in Cambodia, Phnom Kulen is also threatened by illegal logging. The pressure on the largest remaining trees is mostly driven by the international and national demand for luxury hardwoods, by the local market for furniture, and by the tourism industry in Siem Reap for decorative items. There are even furniture shops inside the Park (in Preah Ang Thom village). In Khun Ream Commune, there are 13 brick factories along Road 67 just outside the Park boundaries, and most households in this area have charcoal kilns behind their houses (Wildlife Alliance, 2013). The demand for fuelwood and charcoal far outstrips the available supply and has resulted in continuous pressure on remaining forests in PKNP. Finally, while most of the communities in Varin District are located outside the national park, they also rely on forest resources coming from the park. Based on interviews of villagers living inside PKNP, a vast majority of respondents stated that people from outside their village were the ones extracting forest products (mainly timber and fuelwood) from the Park (Motzke et al., 2012).

The loss of forest cover in PKNP has negative impacts not only for local biodiversity and livelihood options (e.g. collection of NTFPs), but has already resulted in regular water shortages during the dry season for Siem Reap Province due in no small part to the massive upsurge in tourism. The downstream impacts of the upstream depletion of forests in PKNP have the potential to severely affect the future development potential of Siem Reap Province and threaten the foundations of the Angkor World Heritage Site. Thus, the protection and restoration of these forests must be a management priority for PKNP.

Significant amounts of water from PKNP are also being used by a growing number of pepper plantations on the periphery of the Park, and by the Eau Kulen Natural Mineral Water Company whose bottling plant is located just outside the Park.

3.2 Agricultural Practices

Shifting cultivation requires many plots of land for each household to rotate when soils have become degraded. This practice may work for a large, remote forest area with low population density; however, it cannot be sustained in an area with limited resources and a fast growing population, such as PKNP (Hayes et al. 2013). Over the past decade, changes in the shifting cultivation practice from planting annual and biennial crops (e.g. rice, cassava, and corn) to the practice of intercropping using cashew nut trees, has forced villagers to convert additional forest lands to agriculture. Returning areas with cultivated cashew nut trees back to rice farming (or, forest) is difficult due to insufficient soil nutrients. There are reports of herbicides now being used

in the cashew plantations which will further destroy any regeneration and potentially threaten the quality of the limited water supply in PKNP (ADF, pers. comm.).

It is questionable whether the recent cashew plantations actually benefit the livelihoods of the traditional villages in PKNP. While less labor-intensive than shifting cultivation and vegetable gardens, cashew trees take about 5 years to mature and the prices offered by middlemen are much lower (ca. 4,000 riels/kg) than average market prices. Most of the cashew plantations are “owned” by local investors using local villagers only as laborers. The production is sold to local or outside middlemen.

3.3 Patrolling and enforcement

Despite the presence of MoE Rangers, APSARA Guards, Heritage Police and local Police employed within PKNP for enforcement and protection, there is a lack of effective patrolling and enforcement as evidenced by continued illegal activities in PKNP such as logging, hunting, encroachment and new settlements. Patrolling does not normally extend beyond the existing transportation network and villages leaving large areas in more remote sections of the Park open to illegal activities.

Enforcement is currently seen as a last resort and MoE Rangers focus their activities on raising awareness in local communities. Over the last year, 6 enforcement cases were brought to Court and some illegal equipment was seized (including 18 modified firearms, 6 chainsaws, and 2 motorbikes). There is currently a lack of adequate resources for effective patrolling and enforcement, including:

- **Budgets:** there is a 7-day/month limit on patrols meaning Rangers on patrol have to rotate every 7 days. Rangers receive an allowance of 12,000 riel/day (USD 3/day) while on patrol to cover fuel and other costs;
- **Infrastructure:** there are 7 sub-stations scattered mostly around the Park boundaries (with 3 sub-stations currently inside the Park) – there are no sub-stations along the access roads into the Park at the toll gate operated by the private company or at the eastern entrance;
- **Equipment:** Park staff (48 Rangers) share one old vehicle and, otherwise, have to use their own motorbikes for patrolling. The only firearms available to Rangers are outdated rifles (AK-47's) that are seldom used. Park staff have 3 GPS that are currently not working. Neither Park staff nor the PDoE have access to current and updated maps of PKNP;
- **Communications:** all Rangers use their own mobile phones but there is no coverage in the forested areas of the western plateau or in parts of the eastern plateau. There is no other mobile communications equipment available to Park staff; and,
- **Lack of demarcation and clear land use rules:** only parts of the PKNP outer boundary has been demarcated and there is no zoning to clarify what activities are permitted and where in the Park. This further complicates enforcing the Protected Areas (PA) Law for Rangers.

Finally, there is a general reluctance based on safety concerns among the Rangers to apprehend illegal loggers or hunters that are armed and operate during the night.

3.4 Tourism development

Tourism volume in PKNP is largely unregulated and, on some holidays, can reach thousands of visitors. The resulting problems of overcrowding, unregulated access to vulnerable areas, littering and pollution not only affect the visitor experience but also tends to gradually wear down the Park's infrastructure.

At present, the majority of revenue derived from tourism goes to the private tourism concession which controls and charges a \$20 access fee for foreign tourists to enter the park and access the waterfalls. The company also charges the concessions operating near the waterfalls (restaurants, food stalls, clothing stalls, etc.) and also apparently charges a monthly fee for the houses built in Preah Ang Thom village. Very little (if any) of this revenue has been invested in conservation and protection activities of PKNP (Bonheur et al., 2008). Furthermore, benefits from tourism are not distributed to the traditional villages (such as Anlong Thom) that have difficulty bringing their goods and services to the markets in Preah Ang Thom. In addition, local communities are required to pay USD20 per month to the private concession to be able to sell their produce at the tourist sites.

The area around the waterfalls (including the parking lot, restaurants and concessions) has become congested and gradually worn down resulting in a number of environmental issues, including littering, water pollution and noise. The Provincial Government recently initiated a clean-up and removed 3 tons of solid waste from the area. This needs to be done regularly.

TripAdvisor rated PKNP as #47 among 185 best attractions in the Siem Riep area (Dec. 2016). Of 414 visitor ratings, 81% rated their experience as “Excellent/Very good” while 11% rated it as “Terrible/Poor”. The “good” ratings mentioned that PKNP offers opportunities for a different experience than that of Angkor, including hiking, biking and cooling off at the waterfalls. Most of the “poor” ratings referred to congestion, “commercialization” and littering especially at the Preah Ang Thom site.

Provincial authorities, including the Provincial Department of Environment, are not fully aware of the number of tour operators for Kulen National Park. This is because some tour operators work directly with the local communities, local police, or local rangers without informing the provincial authority. There is a need to coordinate and register tour operators to ensure safety for national and international tourists as well as to ensure that their activities would have minimal impacts on the natural and cultural resources in Kulen National Park, and that the benefits of tourism are shared with the local communities.

3.5 Overlapping jurisdictions

The overall authority for management of the PKNP lies with MoE and its implementing agencies (GDANCP and GDLC) in collaboration with provincial and local authorities. The APSARA Authority is in charge of protecting and managing the Angkor World Heritage Site and surrounding temples, as well as the archaeological sites in Siem Reap Province which include those found in PKNP. Finally, the privately owned Norkor Kok Thlok Company was given a 30-year lease in 1998 to develop an area of 2,400 ha near Preah Ang Thom for tourism. The privately owned company does no longer exist but is still collecting entrance fees from visitors to PKNP. Negotiations are currently underway with the owner to cancel the lease agreement.

It will be essential for MoE and the APSARA Authority to clarify their respective roles and responsibilities in the future management of PKNP, particularly as it relates to the development and maintenance of tourism facilities. The recent government decision to incorporate the APSARA Authority under the Ministry of Culture and Fine Arts also needs to be taken into consideration. Furthermore, FA has an important technical role to play in supporting reforestation efforts in PKNP and managing the demand for timber and fuelwood outside the Park boundaries.



4. The Management Program

4.1 Vision, Mission and Objectives

In giving the PKNP the designation of a “National Park”, the RGC has made the overriding land use decision that the primary management objective of the area within the PKNP boundary is for its conservation, scientific, educational and recreational values. The proposed Vision, Mission and Objectives recognize the importance of clarifying jurisdictional mandates and collaborating with local communities in safeguarding the significant natural and cultural values of PKNP for the future, as follows:

Vision: *To protect and sustainably manage the natural resources and cultural heritage values of the PKNP in active partnership with local communities and other stakeholders for the benefit of all Cambodians.*

Mission: *To strengthen functioning and capacity of national and sub-national institutions for effective implementation of policies, laws and regulations that enhance management of natural resources and cultural heritage in PKNP.*

Overall Objective: *To reduce forest loss and degradation while promoting environmentally sustainable livelihoods and conservation of natural resources and cultural heritage in PKNP.*

4.2 Strategic Program Areas (SPAs)

To address the threats and challenges facing PKNP, this Management Program has been organized based on four main Strategic Program Areas (SPAs), as follows:

SPA1: Strengthen Natural/Cultural Resources Protection and Conservation;
SPA2: Expand Community Participation and Benefits;
SPA3: Strengthen Institutional Capacity and Collaboration; and,
SPA4: Secure Sustainable Financing for PKNP.

The links between threats, SPAs and proposed priority actions are summarized below:

Threats	SPAs	Priority Actions
Direct factors		
Forest loss and degradation	1, 2	<ul style="list-style-type: none"> ➤ Complete boundary demarcation, land registration and zoning to clearly identify core and conservation zones for protection; ➤ Promote alternative and sustainable land use options; ➤ Initiate forest restoration activities and promote natural regeneration and protection of water sources.
Threats and damages to ancient temples and heritage sites	1	<ul style="list-style-type: none"> ➤ Demarcate areas for temple protection and identify archeological protected areas (APAs) ➤ Research and compile inventory of cultural heritage sites ➤ Produce hazard maps to conserve and maintain ancient temple and heritage sites
Illegal logging, hunting, fishing or encroachments	1, 2 & 3	<ul style="list-style-type: none"> ➤ Accelerate law enforcement training for Rangers and local authorities; ➤ Provide adequate resources for effective law enforcement; ➤ Strengthen community involvement in monitoring and reporting illegal activities.
Indirect factors		
Limited community engagement in PA management and monitoring	2 & 3	<ul style="list-style-type: none"> ➤ Strengthen collaborative management (establish local Park Management Committee); ➤ Enhance outreach and awareness; ➤ Support capacity building and training for local authorities and local communities to assume greater responsibilities for PA management.
Limited livelihood opportunities	2	<ul style="list-style-type: none"> ➤ Expand community livelihood opportunities; ➤ Promote benefit sharing from tourism operations.
Unregulated tourism development	2	<ul style="list-style-type: none"> ➤ Complete negotiations to cancel private tourism concession; ➤ Develop Tourism Management Strategy in collaboration with local partners, APSARA Authority and Ministry of Tourism.
Limited collaboration between agencies	1, 2 & 3	<ul style="list-style-type: none"> ➤ Clarify roles and enhance inter-agency collaboration.
Limited capacity and inadequate resources	1,2, 3 & 4	<ul style="list-style-type: none"> ➤ Invest in capacity building, training and equipment upgrades.
Lack of sustainable financing options	4	<ul style="list-style-type: none"> ➤ Explore options for generating direct revenues to PKNP management from tourism operations; ➤ Demonstrate the economic values of PKNP (e.g. providing watershed services to Siem Reap).

SPA1: Strengthen Natural/Cultural Resources Conservation and Protection

The natural resources and cultural values of PKNP are increasingly threatened by encroachments, illegal activities and unregulated development. Strengthening protection must be the first priority to quickly address these threats and restore the values for which this National Park was originally established. The following sub-programs will be implemented:

SPA1.1 Secure park boundaries and management zones

In order to reduce the threats from illegal activities and encroachments, it is first necessary to clearly identify and register the boundaries of the PKNP and then clarify where permitted activities are allowed (i.e. through management zoning). This program of activities will be implemented with participation from local communities in a sequence of interrelated steps that include:

1. **Demarcation of PKNP boundaries:** The demarcation of the outer boundaries of the Park will be completed and the boundaries will be registered with the Ministry of Land Management, Urban Planning and Construction. Boundaries will be demarcated using standard concrete markers placed at appropriate intervals. Park signs in both Khmer and English will be placed at road entrance points (including Road 67, the Svay Leu entrance road and the Park entrance where the current toll gate is located) to ensure locals and visitors alike are aware they are entering a National Park.
2. **Zoning:** Integrated ecosystem mapping was used to identify 1) existing natural and cultural values (including forest cover and archaeological sites); and, 2) current land uses (including agricultural areas, settlements, roads, land tenures and park facilities). Previous work and consultations done by Hayes et al. (2013) was considered to help delineate management zones that would address the conservation and sustainable use objectives of PKNP.

Based on the PA Law (2008), the following zones were delineated primarily for the natural resources in PKNP:

- a) **Core Zone:** management area of high conservation values containing threatened, endangered, and critically endangered species, and fragile ecosystems. Access to the core zone is prohibited except for duly authorized officials and researchers conducting studies for the purpose of preservation and protection of biological and cultural resources in PKNP. The latter two categories require prior permission from MoE to access the Core Zone.

Given the biodiversity and watershed values provided by the forests in PKNP and the rapid rate of current deforestation, the Core Zone includes the remaining contiguous forest areas on the western Plateau and on the adjacent eastern Plateau. These areas will be off limits to any further forest removal and encroachments, and will be regularly patrolled by Rangers and other law enforcement officials. Since there are no permanent water sources in the Core Zone, Rangers will need to transport their own water for patrols.

- b) **Conservation Zone:** management area of high conservation values containing vulnerable ecosystems, heritage sites, and watershed areas. Small-scale subsistence uses of timber, fuel wood, and non-timber forest products to support local villages may be allowed under conditions set by MoE, provided that these do not have serious adverse impacts on biodiversity conservation and ecosystem value within the zone. Where appropriate, forest restoration with local community involvement will be done. Encroachments and agricultural practices will not be permitted in this Zone.

The Conservation Zone includes a) areas of remaining, but fragmented, forests adjacent to the Core Zone; b) the lower slopes of PKNP to facilitate restoration and prevent further degradation and erosion; and, c) designated CPAs and APAs to prevent further encroachments.

- c) **Community Zone:** management area for socio-economic development of the local communities including existing residential and agricultural lands in the immediate vicinity of the villages, small-scale harvesting and production activities (such as nurseries and NTFP cultivation) and, where appropriate, forest restoration activities. Large-scale commercial and agri-business activities will not be permitted. Communal (not individual) land titles will be issued to those villages considered part of the Community Zone with priority given to the 5 traditional villages in Khnang Phnum Commune. Using FAO criteria as a guideline (cited in Wildlife Alliance, 2013), each family will be assigned 3 ha for shifting cultivation that will be included in the Community Zone for each village. This means the Community Zone for the 5 traditional villages would include at least 1,715 ha for cultivation (based on 572 households). Existing cashew nut plantations would not be part of the Community Zone but, rather, the Sustainable Use Zone (see below).

The Community Zone in PKNP includes the developed areas around the traditional villages on the Eastern Plateau and the central valley between the Western and Eastern Plateau (along Road 67). In the latter area, no further expansion of large-scale farms or charcoal kilns will be permitted. Where feasible, resettlement and relocation of businesses and people from the central valley will be considered following consultations with local communities.

- d) **Sustainable Use Zone:** management area supporting livelihood improvements of local communities and including areas currently with cashew and banana tree plantations. No new plantations will be permitted and existing plantations will require permits issued by MoE to local community residents only. Where appropriate, forest restoration with local community involvement will be done to develop other options for livelihood improvements by reclaiming idle plantations. This Zone will cover the remainder of the largely non-forested parts of the eastern plateau.

The Sustainable Use Zone will also include the designated corridors for tourism along the access road to Preah Ang Thom, the toll gate, the new villages that have been established along the access road (Ta Vireak Kat and Ta Han), and the trails to the Kbal Spean site. Where feasible, resettlement and relocation of businesses and people from these tourism corridors will be considered following consultations with local communities.

The Provincial Government has identified an area of 175 ha outside the Park (currently administered by FA) that could be used to relocate up to 415 families from the new villages currently in the Park. Priority for relocation would be households in the Preah Ang Thom area and those located along the road to the Preah Ang Thom site. The relocated families would be provided with land titles, houses and basic services from the Province. Prior to relocation, the provincial authority will ensure that access to basic services and infrastructure is available. A population census will be necessary to clearly establish the numbers, locations and length of residency of families currently living inside the Park. There are already precedents for this type of relocation as shown by the APSARA zone (Run That Aek) for relocating villages from the Angkor World Heritage Site. Opportunities for relocating additional families from the Park to this APSARA zone should be explored.

A map of the proposed management zones is provided in Annex 2 and a table summarizing allowable activities in each zone is provided in Annex 3. The boundaries of the Community Zones shown in Annex 2 are indicative only and will be finalized in consultations with the local communities. The zones will be delineated based on natural features, wherever possible, and shared with local authorities and villages to validate the boundaries based on local knowledge and current land use practices. .

SPA1.2 Facilitate forest conservation, restoration and maintenance

Forest conservation, restoration and maintenance will be considered a management priority for PKNP given the ecosystem services these remaining forests provide for protecting vital watersheds, maintaining biodiversity, and diversifying local livelihood options. Management actions will focus on the Core and Conservation Zones, and include a two-pronged approach to a) reduce threats to the remaining forest areas; and, b) restore natural forest cover in degraded areas.

Conservation and protection of vital water sources will also be done under this sub-program by prohibiting activities that pollute, divert, or otherwise threaten, the flow of clean water. This will include addressing liquid waste issues (see also SPA2.4) and stopping the practice of washing vehicles in the streams of the Park.

Threat reduction

Law enforcement capacity will be substantially strengthened to detect and deal with the illegal logging activities currently underway in the Core and Conservation Zones (see SPA1.3). Regular patrolling in collaboration with Unified Commanding Committees will further discourage encroachments into these zones. No further land clearance will be permitted in the Core and Conservation Zones. Traditional farming systems in the Community Zone and the Sustainable Use Zone will be reviewed in collaboration with local communities to explore options to develop more sustainable practices (see also SPA2.2). Immediate interventions to stop forest degradation and deforestation for Phnom Hop must be put in place. In addition, communities located in Varin District, adjacent to the park, should be engaged in alternative livelihood activities to reduce pressures on the remaining forest on the western plateau.

Restoration and Maintenance

Forest restoration will be carried out by: a) encouraging natural regeneration in areas adjacent to natural forests; and, b) applying silviculture practices using native species from nurseries established specifically for PKNP. Priority areas for forest restoration will include:

- Degraded areas in the Core and Conservation Zones (particularly along lower slopes);
- Degraded areas in the CPAs and APAs³ located in Conservation Zone;
- Degraded areas in the Community Zone that could act as wildlife corridors between contiguous forest areas (e.g. between the western and eastern plateau; between Phnom Hop and the eastern plateau);
- Areas still in good condition, such as Kbal Spean, Phnom Sruoch and Phnom Hop where forest restoration would yield quick wins; and,
- Areas with remaining deciduous dipterocarp forest (e.g. Tonsay Phaeul) that could be designated as a "gene bank conservation area", preventing further encroachments into this area.

³ For example, ADF started pilot reforestation project in Prasat Neak TA APA and planted 5,000 trees in 11 cashew nut farms while promoting alternative livelihoods (mainly chicken raising).

Forest restoration will be accompanied by careful maintenance and monitoring of newly planted areas by local communities to ensure survival of seedlings and young trees.

SPA1.3 Enhance law enforcement

New investments will be made in the protection of Park resources and the enforcement of relevant laws. Park Rangers working in close collaboration with local authorities and communities will be trained and appropriately equipped to operate effectively in the field. Additional improvements will be made in the following areas:

- Providing specialized law enforcement training for Rangers in cooperation with the Unified Command Committees;
- Mobile and rapid deployment law enforcement teams (including representatives from other administrative units, as well as the military police) will be established to patrol the Core and Conservation Zones. This will include close monitoring of the well-used access trails where timber is now transported off the western plateau;
- Modern law enforcement equipment will be procured, including at least two 4WD vehicles and 10 off-road motorbikes, radios, GPS and digital cameras. Remote camera traps (GSM enabled or wireless back-up models) will be used to monitor logging access routes and trails;
- Incentives and rewards will be provided for arrests and confiscation of property related to illegal activities;
- Boundary markers and billboards will be placed on roads and access trails to confirm the locations of the Park (boundary markers) and the Core/Conservation Zones (billboards);
- Awareness programs will be carried out in local communities to convey the management objectives and priority actions related to PKNP; and,
- In collaboration with Military and Police authorities, consideration will be given to seize all chain saws and modified guns currently kept inside the Park, unless these have been authorized by permit from the relevant authority.

Threat reduction activities will be further addressed by developing sustainable livelihood opportunities for local communities. Voluntary patrols by local communities will be encouraged and supported with modest budgets. Reports from these patrols will be incorporated in the data management system used by the Rangers for enforcement purposes.

SPA1.4 Promote wildlife conservation

Further biodiversity surveys of PKNP will be encouraged to better document species distribution and abundance with a focus on globally threatened wildlife species (see also Section 5 on Research). Illegal hunting and, particularly, the commercial sale of wildlife species inside the Park will be curtailed through proper enforcement.

Re-introduction of native wildlife species will be explored in collaboration with the Angkor Center for Conservation of Biodiversity (ACCB).

SPA1.5 Protect cultural heritage sites

Maintenance protection and conservation of cultural heritage is an essential objective of the Kulen National Park Management Program. The focus of this task include: research and compilation of an inventory for cultural heritage sites; demarcation of areas for temple protection and identification of new archeological protected areas (APAs); and production of hazard maps to conserve and maintain ancient temple and heritage sites. These tasks will be conducted in partnership with the Ministry of Culture and Fine Arts through the APSARA Authority and ADF who is conducted research in the area.



SPA2: Expand Community Participation and Benefits

The active participation of local communities will be essential in the future protection and development of PKNP. At the same time, the massive in-migration to PKNP resulting in encroachments and further loss of forests cannot be sustained as it threatens not only the ability of the Park to act as the water reservoir for Siem Reap Province, but also the livelihoods of the original villages in PKNP. Hence, there is an immediate need to stop further in-migration and consider re-settlement of new arrivals to areas outside the Park.

SPA2.1 Prioritize local participation in Park management

As part of recent decentralization reforms, the PDoE and its District offices are responsible for management of the PKNP (including awareness raising, livelihoods development and enforcement) while Commune Councils are responsible for community involvement and implementing Commune Investment Plans.

Priority for community engagement and support will be provided to the 5 original villages in Khnang Phnum Commune (Anlong Thom, Ta Penh, Sangke Lak, Khla Khmum, and Thmor Chrougn) that are also managing CPAs. Residents of the remaining 4 villages that have been established over the past 15 years (Por Pel, Preah Ang Thom, Phum Thmey and Ta Han) will be offered opportunities for re-settlement outside the Park.

Participatory planning will be done with the Commune Council and target villages to:

- refine the boundaries of the proposed management zones in PKNP (focusing on the Community Zones);
- increase understanding of laws and regulations outlining rights/responsibilities associated with traditional resource uses in PKNP; and,
- explore opportunities for joint patrolling with Rangers, participation in forest restoration activities, and in tourism development.



Continued support for the existing CPAs will include assistance in completing simple CPA Management Plans and integrating these into Commune Investment Plans as a means of securing political support for strengthening participation of local communities in management planning processes.

A local **Park Management Committee (PMC)** will be established with representatives from the Park authority (including Rangers), Commune Councils, local Police and the 5 original villages. The role of the PMC will be to coordinate and implement management actions in support of natural/cultural resources protection and conservation, and sustainable livelihoods development.

SPA2.2 Expand environmentally sustainable livelihood opportunities

Efforts will be made to progressively shift away from the traditional “slash and burn” agricultural practices and reduce the dependence on cashew nut plantations by introducing new agro-forest methods that can provide more diverse, profitable and environmentally friendly products. The advantage that PKNP has lies in its name (Kulen) that is widely recognized and associated with a “clean” environment⁴.

The GIZ-funded “Biodiversity-Based Products (BBP)” has just initiated a regional project in PKNP to identify potential NTFP products and value chains that could enhance livelihood benefits for local communities. Based on Value Chain Assessment, three main commodities from NTFP products of PKNP given the highest priority were: *Zingideraceae* (Prateal Thleum Chake), bamboo handicraft, and wild honey products. By expanding and up-scaling products from these potential commodities, the BBP-Project will contribute to improved livelihoods and food security focusing

⁴ A case in point is the Eau Kulen Natural Mineral Water Company that uses Kulen as its “eco-label”. Unfortunately, the Company is so far only removing water from PKNP and not putting anything back into its preservation.

on the villages with CPAs (P. Tola, 2015). MoE will closely monitor the results and outcomes of this Project.

ADF is currently working with 60 local farmers to reduce their impact on the forest of Phnom Kulen by shifting traditional agricultural practices to high yielding activities, such as in-house oyster mushroom farming, fish farming, chicken raising and seasonal vegetable growing. Recently, ADF initiated a cooperative in Preah Ang Thom village, which will be serving as a hub for products grown and made locally. MoE will support this work and seek to mobilize additional funding from donors to expand opportunities for more community involvement in these livelihood activities.

To ensure that the community benefits directly from the presence of archaeological sites around their villages, ADF also employs up to 60 villagers as daily workers during the annual excavation campaigns; an additional 47 villagers are working for the APSARA Authority in the maintenance and protection of archaeological sites.

Similarly, MoE will involve local communities directly in reforestation and restoration activities in the Park, including the further establishment and maintenance of forest nurseries. In collaboration with the MoT, APSARA Authority and local tourism operators, training and capacity building will be provided to local communities to also participate more directly in tourism development in the Park.

SPA2.3 Promote sustainable tourism and locally operated eco-tourism

Most of the visitors to Phnom Kulen National Park will be channeled through the designated roads and trails of the Sustainable Use Zone to reduce any negative impacts on adjacent ecosystems and vulnerable archaeological sites. In collaboration with local communities, the APSARA Authority, Provincial Government and the Ministry of Tourism (MoT), a Tourism Management Strategy will be developed that addresses conservation and development needs to improve the visitor experience. The Strategy will consider two types of tourism relevant to PKNP: the “general” tourism focused on visiting the main cultural attractions (temples and other heritage sites), and eco-tourism focused on experiencing natural attractions or local livelihoods (wildlife tours, homestays, etc.). In PKNP, general tourism can be high volume and (potentially) high impact requiring considerable investments in infrastructure and visitor management by the Park authority. Eco-tourism, on the other hand, tends to be “low volume – low impact” and is best managed by local communities and local authorities that have been provided with basic training to offer ecotourism opportunities.

Considerations to be included in the Strategy will include:

- reviewing and, if necessary, restricting the current commercial development at the Preah Ang Thom waterfalls which is now covered by shopping and food stalls;
- cooperate with the Cambodia Mine Action Center (CMAC) to complete the demining of the national park for both tourism development activities and local communities
- designing a quality map and interpretive brochure describing park facilities, natural features and sites of archaeological interest in PKNP – this map and brochure will be included in the entrance fee paid by visitors to the Preah Ang Thom and Kbal Spean sites. Private sector companies (such as Eau Kulen Natural Mineral Water Company) could be approached to help finance the production of this brochure;
- establish information centers in main areas within the park such as at Kbal Spean and Preah Angthom with basic facilities (including rest rooms) and information to raise awareness for, and interest in, the natural and cultural values of PKNP;
- developing signage (in both Khmer and English) at the Preah Ang Thom and Kbal Spean sites modeled on the Codes of Conduct used for Angkor World Heritage Site;

- providing training for local villagers and Rangers in tourism management;
- improving communications and collaboration between local tour companies and Rangers;
- preparing guidelines on tourism management in each of the zones to clarify what activities are permitted in what zone;
- agreeing on a fee structure for visitors and a transparent system for directing revenues back into the protection and management of PKNP; and,
- upgrading roads and parking lots, where necessary, to provide better access to tourism facilities.

Priority will be given to long term residents for providing services in the Park (e.g. guiding, food and handicraft vendors, lodging and homestays). Tour companies, guides and commercial concessions operating at designated sites inside PKNP will need to be registered and licensed with the Ministry of Tourism and approval from the Provincial Department of Environment. Local tour companies with a proven track record in providing socially responsible ecotourism (e.g. Terre Cambodge) should be engaged as advisors in developing the Tourism Management Strategy.

SPA2.4 Address waste management

The current amounts of solid and liquid wastes generated by the large numbers of visitors to PKNP (particularly in the Preah Ang Thom area) not only impacts on the visitor experience but also threatens the quality of the water supply. Waste management bins will be placed in enough locations to eliminate littering at the most visited sites. Recycling will be promoted wherever possible, including restricting the use of plastic bags and water bottles in favour of recyclable materials produced locally (including handicraft containers and products from tree leaves). Tour operators and visitors will be encouraged not to bring plastic inside the park. Dumping of garbage and liquid wastes in water sources will be strictly prohibited, if possible fines will be applied.

Ideally, the waste generated in PKNP should be removed from the mountain to a waste management facility outside the Park. However, given costs involved, other options will also be explored, including burning non-hazardous waste in a contained facility inside the Park.

SPA3: Strengthen Institutional Capacity and Collaboration.

Many of the current issues facing PKNP today relate to overlapping jurisdictions and the limited capacity and resources (both human and financial) that the MoE has available to effectively protect and manage this National Park. Given the importance of PKNP to Siem Reap Province and to many Cambodians, a renewed investment by the Royal Government of Cambodia needs to be made to ensure future generations can continue to enjoy the natural and cultural heritage that PKNP provides. Management effectiveness would also be enhanced by better institutional collaboration and by documenting the economic values that PKNP represents in terms of its watershed catchment and tourism potential.

SPA3.1 Clarify institutional roles and responsibilities

As the primary management authority for protected areas in Cambodia, MoE retains jurisdiction for the conservation and protection of PKNP. This includes access to the Park as well as promoting environmentally sustainable livelihoods (including eco-tourism). The APSARA Authority has the responsibility for safeguarding archaeological sites within the Angkor World Heritage Site, as well as Siem Reap Province (where PKNP is located). While there is an overlap in geography, the institutional roles and responsibilities are separate and serve to complement each other.

SPA3.2 Ensure adequate staff with appropriate capacity and resources

The capacity and resources required for effective law enforcement were addressed in SPA1.3. In addition, both Rangers and local authorities (at Provincial, District and Commune levels) would benefit from targeted training in participatory methods for engaging local communities in protected area planning and management (including livelihood enhancements). This training should be led by central MoE staff from GDANCP and GDLC with support from NGOs experienced in working directly with local communities.

At the PDoE level, technical capacity needs to be enhanced in order to provide the oversight and support required for implementing the PKNP Management Program. It will be important to ensure PDoE staff are included in any technical trainings or workshops provided at central levels by GDANCP and/or GDLC. Additionally, staff secondments or transfers from MoE (GDANCP/GDLC) should be considered for augmenting the technical capacity at the provincial level. One of the immediate needs identified by the PDoE Director is having staff that can prepare basic funding proposals. The PDoE Director should be assigned an annual operational budget for PKNP from MoE that covers basic expenditures related to travel, workshops, training, equipment, and infrastructure maintenance.

An initial investment in capital infrastructure (upgrades to main Park station and relocation of a number of sub-stations), new vehicles (one 4WD truck and 10 off-road motorbikes), and new equipment (radios, GPS, firearms and remote cameras) will be necessary with funding sought from new government sources and international donor agencies.

SPA3.3 Enhance collaboration for protection and management

Enhanced collaboration between MoE and the Ministry of Culture and Fine Arts, particularly through the APSARA Authority, will be necessary during implementation of the Management Program, particularly as it relates to conservation and protection of cultural heritage sites. If PKNP is nominated as an extension of the Angkor World Heritage Site, it will be particularly important to clarify the respective roles in the protection and management of the PKNP site. Given that Kulen National Park is a sacred site, the Ministry of Cult and Religion will be engaged in the development of awareness raising activities, particularly in the production of promotional materials for visiting tourists.

FA has an important role to play in supporting and providing advice on reforestation efforts in PKNP. Additionally, the FA forest located adjacent to PKNP that has now been transferred to MoE can provide additional protection for the Core Zone on the western plateau in PKNP. Meaningful collaboration with FA on resource assessments and management strategies for this new area will be important.

The two international organizations that have been working in PKNP for many years (ACCB and ADF) can provide valuable technical advice and support for the implementation of the PKNP Management Program. MoE will recognize their valuable involvement and formalize the relationship in a MoU with each of the organizations⁵.

⁵ ACCB has an existing agreement with MoE but it needs to be updated and renewed. ADF is starting the negotiation of a MoU with the MoE.

SPA4: Secure Sustainable Financing for PKNP

This strategic program area seeks to a) identify the operational and program costs required for initial implementation of the PKNP Management Program; and, b) propose sources of financing that can sustain interventions on the ground.

SPA4.1 Identify financing needs for the PKNP Management Program

The estimated cost of implementing the PKNP Management Program over the next 5 years (2018-2022) is approximately USD 2.8 million (Annex 4) over and beyond the existing government budget for PKNP which covers salaries of Rangers and basic operating expenditures (Annex 5). The estimated costs do not include the contributions that could be contributed by the APSARA Authority for the management and protection of cultural heritage sites within PKNP.

Over 50% of the estimated program costs are allocated to reforestation activities to progressively restore the natural forest cover in PKNP – the target is to have at least 1,000 ha restored by 2022. Other major investments will be made in the areas of enhancing law enforcement capacity and sustainable livelihoods, and upgrading facilities and infrastructure to more effectively manage increasing volumes of tourists.

Responsible leads and supporting agencies have been indicated for each program activity (Annex 4). When the indicative budget is broken down by year, it can be seen that most activities and expenditures will happen in Years 2 and 3 (2019-2020) assuming that budgets for implementation will be available in early 2018 (Annex 5).

Implementation of the PKNP Management Program will be overseen and facilitated by the Phnom Kulen Working Group where all the relevant authorities are represented. The local Park Management Committee will be responsible for implementing activities on the ground.

SPA4.2 Identify and secure sources of sustainable financing

There is currently no separate budget for PKNP. Salaries for Rangers and PDoE staff are paid directly from MoE with an additional, modest travel allowance provided to Rangers while on patrol. Procurement for major Park equipment (e.g. boundary markers) is handled directly from Phnom Penh while PDoE has a small budget for general expenses (not earmarked by protected area).

While government funding represents a secure, long-term source of financing (unlike projects), it remains limited and will not be sufficient to cover the initial investments required for upgrading of Park infrastructure and equipment. Hence, a diversity of funding sources needs to be identified to implement the PKNP Management Program.

Visitor entry fees currently represent the best potential for a sustainable financing mechanism that could be used to contribute to the protection, restoration and management of Park resources. While the revenues collected by the private company at the Park entrance to Preah Ang Tom have never been made public, these have been conservatively estimated to be at least USD 200,000 per year which would be a significant contribution to the protection and management efforts required for PKNP. A number of immediate steps need to be taken to realize this financing mechanism:

- the RGC needs to cancel the private concession and transfer ownership in care of MoE as part of the responsible authority for controlling access to PKNP;
- MoE needs to reach an agreement with the Ministry of Economy and Finance (MEF) to

- enable MoE to reinvest the revenues collected directly into PKNP management; and,
- In collaboration with MEF, develop clear operating procedures for the collection and use of revenues from the toll gate to ensure transparency and adequate capacity within the Park management agency to operate this facility effectively and efficiently.

Other potential payments for environmental services (PES) could be based on the water catchment values of PKNP to Siem Reap Province, particularly to the hotel and tourism service industry, as well as to the private sector (such as the Eau Kulen Natural Mineral Water Company). The forest values and associated costs of protecting and restoring these forests in PKNP could be used in securing funding from the Green Climate Fund or the Forest Investment Program. It is already approved by the Green Climate Fund Board Meeting that current Adaptation Fund at Kulen would be scaled up to include implementation of activities in the five traditional villages. Once the Management Programme is endorsed by the Minister of Environment, it could be used as the basis for the MoE to apply for funding from the Green Climate Fund, phase 7.

It will also be important to ensure that proposed donor-funded projects in PKNP respond to management needs and can contribute to the implementation of this Management Program (e.g. the GIZ-funded BBP Project).

5. Research and Monitoring

A full assessment of the watershed values of PKNP and its economic value to Siem Reap Province should be conducted to fully understand the natural values of the Park, as well as the consequences and costs of failing to protect this vital resource. The PKNP provides an excellent opportunity to design and apply PES schemes that translate these values into potential revenues that can help finance the protection of natural/cultural assets and contribute to the development of sustainable livelihoods for the local communities in the Park.

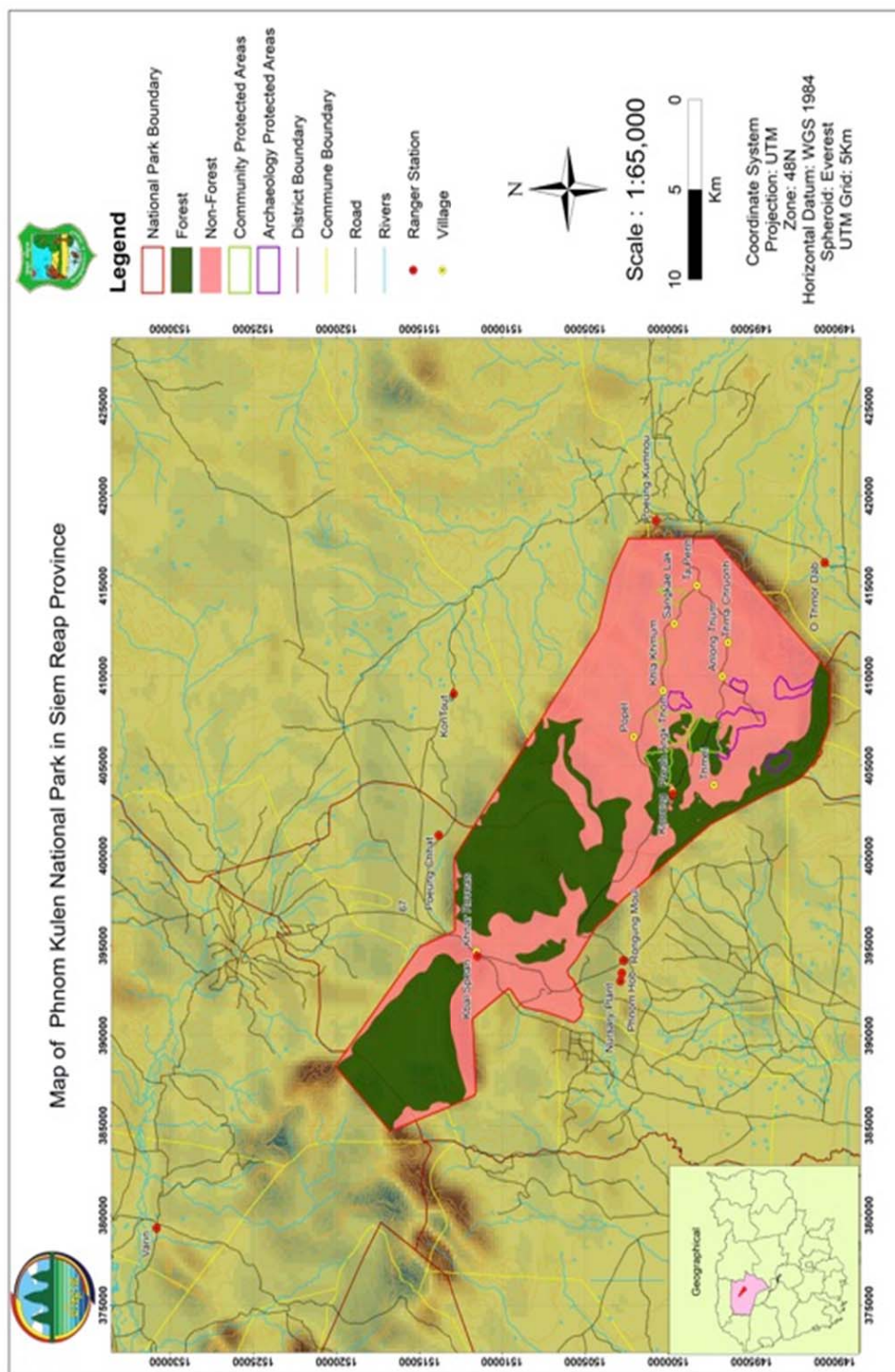
Further biodiversity surveys should be encouraged in the Core and Conservation Zones to compare the results with the baseline recorded during the 2013 survey (Hayes et al., 2013). Further surveys on forest cover and biodiversity should also be carried out in the forest area northwest of the PKNP boundaries to update the baseline (Mould et al. 2014) and help inform future management actions. Additional research on management and conservation of heritage/archeological sites should also be supported and should be implemented through collaboration with the Ministry of Culture and Fine Arts, in particular the APSARA Authority.

Monitoring of the implementation progress of the PKNP Management Program will be done annually by the Provincial Environment Department and reported to MoE. A full review will be done after 5 years (2022) at which time the Plan will be revised, as necessary, and renewed for another 5-year period.

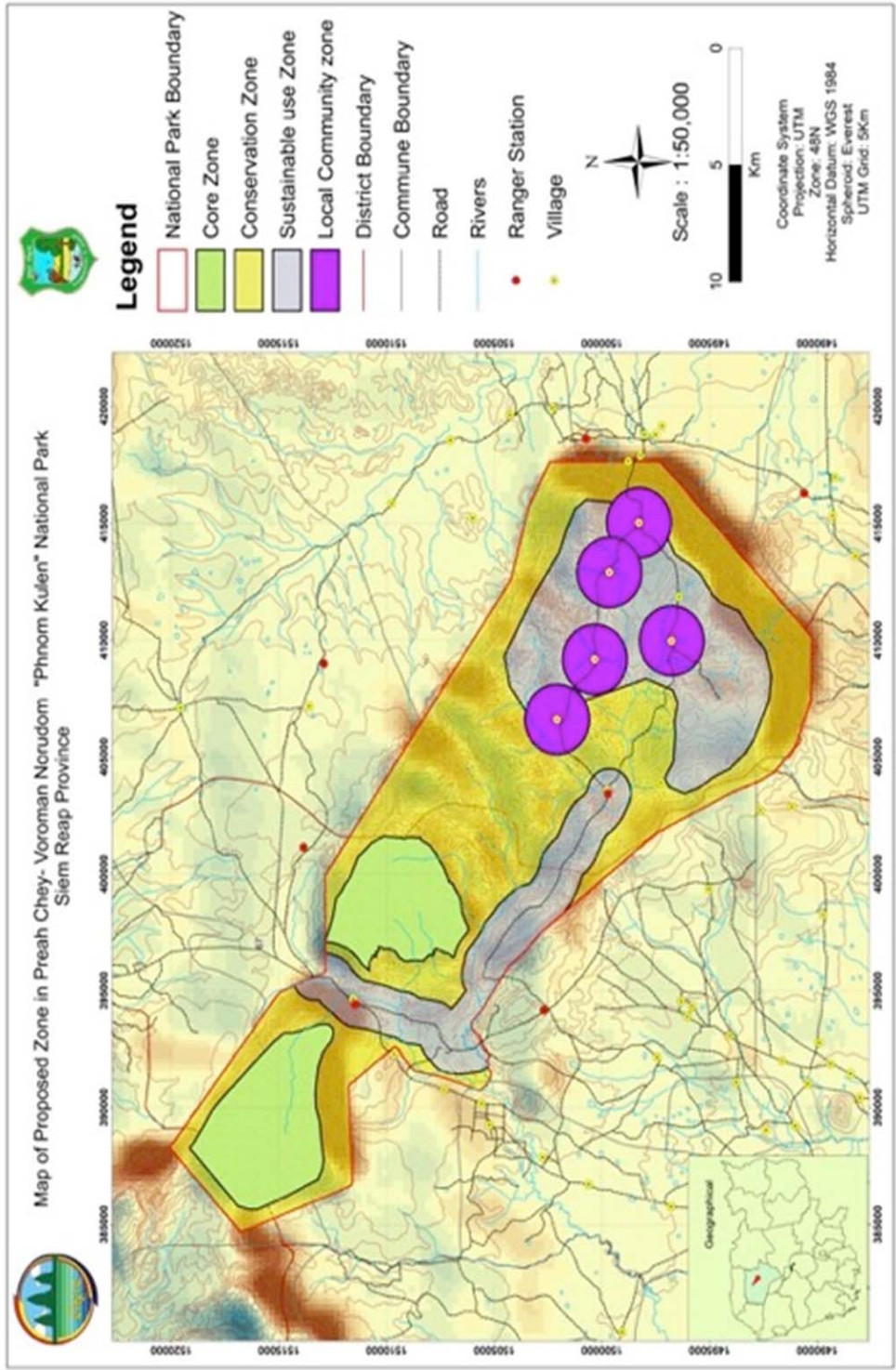
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Annex 1. Phnom Kulen National Park Map



Annex 2. Proposed Management Zones for PKNP



Annex 3. Permitted activities and facilities for each management zone

Activities and Facilities	Management Zone			
	Core Zone	Conservation Zone	Community Zone	Sustainable Use Zone
PA Operations (patrolling etc.,)	✓	✓	✓	✓
Trails	✓	✓	✓	✓
Research and Monitoring (by Permit in Core Zone)	✓	✓	✓	✓
Eco-tourism - small hiking or biking groups (by Permit and accompanied by Rangers in Core Zone where only hiking would be permitted)		✓		
Permanent campsites		✓		
Garbage Disposal Sites		✓	✓	✓
Maintained roads			✓	✓
Tourism Facilities (Interpretive centre and signage, washrooms, vendors, permanent structures, etc.,)				✓
Resource Harvesting by Permit (local subsistence use only)		✓	✓	✓
Resource Harvesting by Permit (small-scale commercial use)			✓	✓
Collaborative Management		✓	✓	✓
Cultivation and Agriculture			✓	✓
Cashew plantations by Permit (local residents only)				✓
Others??				

Annex 4. Summary of indicative program budgets over 5 years (2018-2022)

Note: program budgets (in USD) are additional to the current core staff and operational costs covered by MOE (see also Annex 5).

Strategic Program Area (SPA)	Program Activities	Responsible lead (and support)	Indicative budget	Budget notes (included costs)
SPA1: Strengthen Natural/Cultural Resources Protection and Conservation				
SPA1.1. Secure Park boundaries and management zones	a) Complete demarcation of Park boundaries (40 of 81 concrete posts have been placed)	PKNP staff with support from PDOE	5,000	Transport, excavation and placement of poles (covered by MoE operational budget)
	b) Place large Park signs (in English and Khmer) at main road entrance points	PDOE with support from GDANCP and PKNP staff	10,000	Design, construction and placement of 4 large signs along Road 67 (2), Preah Ang Thom (1) & Svey Leu (1) access roads
	c) Complete delineation of Management Zones	GDANCP and GDLC with support from PDOE and Park staff	10,000	Community consultations, mapping and preparation of Sub-decree (covered by MoE operational budget)
SPA1.2. Establish areas to protect ancient temples and cultural heritage sites	a) Demarcation of protection areas b) Placement of signposts	GDLC, APSARA Authority and ADF	50,000	Produce maps, make demarcation poles, transport and poles placement Design signposts, produce signs, and placement
SPA1.3. Facilitate forest conservation, restoration and maintenance	a) Identify areas suitable for natural regeneration and priority areas for reforestation b) Initiate reforestation and maintenance in priority sites with a target of having 1,000 ha restored by 2022	GDANCP with support from FA	20,000	Field work, travel and preparation of a 5-year reforestation plan for implementation
SPA1.4. Enhance law enforcement		GDANCP with support from FA, PKNP staff and local communities	1,600,000	Based on an estimated cost of \$1,600/ha (FA Data)
	a) Invest in modern equipment for patrolling and law enforcement in PKNP	GDANCP and PDOE	115,000	Lump sum Includes estimated costs for one 4WD truck, 10 off-road motorbikes, communication radios, 10 GPS, 10 digital cameras and 10 modern firearms
	b) Engage local communities in patrolling and monitoring	PKNP staff with support from GDLC	25,000	Consultations, travel and local costs over 5 years (covered by MoE operational budget)
Subtotal			1,785,000	
SPA2: Expand Community Participation and Benefits				
SPA2.1. Prioritize local participation in Park management	a) Provide ongoing support to CPA Management Committees	GDLC with support from PDOE, PKNP staff and ADF	75,000	Development of CPA Management Plans, patrolling, and livelihood enhancements. Operational costs estimated at \$2,000/CPA/year in addition to \$5,000 for developing each Management Plan
SPA2.2. Expand sustainable livelihood opportunities	a) Provide support for enhanced development of alternative livelihoods options	GDLC with support from PDOE, PKNP staff and ADF	250,000	Testing and development of new environmentally friendly agricultural and NTFP products by local villagers. Costs include technical advice, materials and supplies.
	b) Develop and maintain forest nurseries of local species that can be used for reforestation in PKNP	GDANCP with support from FA, PKNP staff and local communities	200,000	Costs estimated for establishment and maintenance of at least 5 nurseries in the Park

SPA2.3. Promote sustainable tourism	a) Develop a Tourism Management Strategy	GDLC and GDANCP with support from PDoE, MoT and APSARA Authority	30,000	Consultations, travel, plan preparation and approval
	b) Develop a PKNP brochure (with map) and signage in high-use areas	GDLC and GDANCP with support from PDoE, MoT and APSARA Authority	20,000	Design, development and production of brochures and signage
	c) Upgrade facilities and develop an interpretive center at the Kbal Spean Park Station	PDoE and PKNP staff with support from GDANCP, GDLC, GDAEKI and ACCB	75,000	Lump sum covering facility upgrades and development of interpretive center
SPA2.4. Address waste management	a) Upgrade waste management and recycling facilities in PKNP	PDoE with support from Provincial Government and PKNP staff	100,000	Development of waste management and recycling facility; purchase and placement of garbage and recycling bins
SPA3: Strengthen Institutional Capacity and Collaboration			750,000	
SPA3.1. Ensure adequate staff with appropriate capacity and resources	a) Complete specialized law enforcement training for all Rangers in PKNP and provide annual refreshers	GDANCP with support from Unified Command Committees	50,000	Costs for specialized training (Year 1) estimated at \$500/Ranger with costs of annual training estimated at \$100/Ranger
	b) Provide training on participatory Park planning and management to PDoE staff, PKNP staff and Commune Councils	GDANCP and GDLC	25,000	Development and delivery of training program for 15 PDoE staff, 50 Rangers and 15 Commune Council members
	c) Provide training in tourism management for Rangers and local communities	GDLC and PDoE with support from MoT, APSARA Authority and ADF	30,000	Development and delivery of training program for 50 Rangers and 50 community representatives
	d) Enhance technical capacity in PDoE for protected area management and monitoring (including proposal writing)	GDANCP and GDLC	25,000	Costs of PDoE staff participating in technical workshops and trainings provided by GDANCP and GDLC (over 5 years)
SPA4: Secure Sustainable Financing for PKNP			130,000	
SPA4.1. Identify and secure sources of sustainable funding	a) Develop a resource mobilization strategy that includes visitor fees and other innovative funding sources	GDANCP and GDLC with support from MEF	50,000	Development and implementation of resource mobilization strategy
Research and Monitoring			50,000	
	a) Complete a watershed valuation study of PKNP	GDANCP with support from the Biodiversity Department (NCSD)	50,000	Study design, data collection, consultations and report preparation
	b) Complete a resource assessment for the area northwest of PKNP (recently designated as a Biodiversity Conservation Corridor)	GDANCP with support from FA	25,000	Field work, mapping, consultations and report preparation
	c) Monitor implementation progress of the PKNP Management Plan	GDANCP, GDLC and PDOE	20,000	Annual monitoring reports and a Management Effectiveness Evaluation in Year 5 (2022)
			95,000	
			\$2,810,000	Estimated costs over 5 years (2018-2022)

Annex 5. Summary of operational and program costs by year (2018-2022)

Budget is presented in USD and applies specifically for expenditures in PKNP.

	2018	2019	2020	2021	2022	Totals (2018-2022)
1. Basic Operational Budget (to be covered by MoE)						
Salaries (1 Park Manager and 48 Rangers)	62,400	62,400	62,400	62,400	62,400	312,000
Travel (patrolling)	12,000	12,000	12,000	12,000	12,000	60,000
Basic station expenses (1 station and 7 sub-stations) – some sub-stations will be relocated in 2018	10,000	25,000	15,000	15,000	15,000	80,000
Repairs and maintenance	15,000	15,000	15,000	15,000	15,000	75,000
Uniforms and other supplies	2,000	2,000	2,000	2,000	2,000	10,000
Sub-total	101,400	116,400	106,400	106,400	106,400	537,000
2. Capital Equipment and Procurement (new funding)						
Vehicles (one 4WD and 10 off-road motorbikes)	20,000	50,000	20,000	-	-	90,000
Patrolling equipment (radios, GPS, digital cameras, firearms)	15,000	5,000	5,000	-	-	25,000
Sub-total	35,000	55,000	25,000	-	-	115,000
3. Program investments (new funding)						
Reforestation (including establishment of nurseries)	364,000	364,000	364,000	364,000	364,000	1,820,000
Livelihoods development and CPA support	50,000	125,000	100,000	25,000	25,000	325,000
Tourism development (including infrastructure upgrades and signage)	85,000	100,000	25,000	15,000	10,000	235,000
Targeted training of Rangers, PDOE staff, and local communities	30,000	50,000	30,000	15,000	5,000	130,000
Resource mobilization strategy	50,000					50,000
Research and monitoring	15,000	50,000	15,000	10,000	5,000	95,000
Sub-total	594,000	689,000	534,000	429,000	409,000	2,655,000
Totals (by year)	730,400	860,400	665,400	535,400	515,400	3,307,000

