GOLDEN LANGUR *(Trachypithecus geei)* CONSERVATION STRATEGY AND ACTION PLAN FOR BHUTAN JULY 2025- JUNE 2035

Nature Conservation Division, Department of Forests and Park Services, Ministry of Energy and Natural Resources, Royal Government of Bhutan

GOLDEN LANGUR (*Trachypithecus geei*)

CONSERVATION STRATEGY AND ACTION PLAN FOR BHUTAN JULY 2025 - JUNE 2035

Nature Conservation Division,

Department of Forests and Park Services,

Ministry of Energy and Natural Resources,

Royal Government of Bhutan

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68th Technical Advisory Committee, Department of Forests and Park Services, Ministry of Energy and Natural Resources, Bhutan

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SECRETARY

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Ministry of Energy and Natural Resources
Royal Government of Bhutan
Thimphu

BHUTAN
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FOREWORD

Bhutan has long been recognized as a global leader in environmental conservation, guided by visionary leadership, a deep cultural reverence for nature, and a constitutional mandate to maintain at least 60% forest cover. As we move into a critical decade for biodiversity and climate action, the Golden Langur Conservation Strategy and Action Plan for Bhutan (July 2025– June 2035) emerges as a vital commitment to safeguard one of Bhutan's most emblematic and endangered primates' species, the golden langur (*Trachypithecus geei*).

Found only in Bhutan and parts of northeast India, the golden langur holds ecological, spiritual, and cultural significance for the people of Bhutan. Yet, this species faces increasing threats from habitat fragmentation, electrocution, road infrastructure, hybridization, and growing human-wildlife conflicts. This plan responds to these challenges with a comprehensive, inclusive, and science-based approach to conservation.

The action plan is a product of wide consultation, rigorous field research, and the shared aspirations of conservationists, community members, field practitioners, and policy makers. It outlines four strategic objectives to ensure long-term survival of the species and its habitats, enhancing scientific understanding, promoting coexistence, and fostering nature-based livelihoods through eco-tourism. The implementation framework aligns closely with Bhutan's 13th Five-Year Plan and reflects our broader commitment to the Sustainable Development Goals (SDGs), climate resilience, and inclusive green development.

Successful realization of this plan requires continued collaboration between government agencies, local communities, civil society, and development partners. I call upon all stakeholders to contribute actively to the protection of this flagship species, not only for its intrinsic value but also as a symbol of Bhutan's conservation ethos.

I would like to commend the Department of Forests and Park Services and all partners for their dedication in formulating this visionary plan.

Let this document serve as a foundation for transformative action, ensuring that the golden langur continues to thrive in the forests of Bhutan for generations to come.

Tashi Delek

Karma Tshering
Secretary

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Royal Government of Bhutan
Ministry of Energy and Natural Resources
Department of Forests and Park Services

DIRECTOR

PREFACE

The Department of Forests and Park Services (DoFPS) is pleased to present the Golden Langur Conservation Strategy and Action Plan for Bhutan (July 2025– June 2035), a decade-long strategic framework developed to guide the conservation of one of Bhutan's most charismatic and endangered primate species, the golden langur (*Trachypithecus geei*).

The golden langur is a symbol of Bhutan's unique natural heritage, occupying a special place not only in our forest ecosystems but also in our cultural and spiritual consciousness. While Bhutan has made significant strides in biodiversity protection through its extensive protected area network and environmental policies, the golden langur continues to face mounting threats. Habitat fragmentation, electrocution, road kills, and increasing human-wildlife conflict threaten its continued survival. This Strategy and Action Plan is an urgent and coordinated response to these growing challenges.

This Strategy and Action Plan is the result of collaborative efforts involving researchers, field conservationists, community representatives, and partner organizations. It builds on the best available science, local knowledge, and lessons from past conservation initiatives, including the Bhutan for Life initiative. It outlines clear objectives, priority actions, and monitoring mechanisms to address critical threats and support long-term population viability. It also emphasizes the role of local communities, inter-agency coordination, and nature-based tourism in fostering coexistence and sustainable development.

I am particularly encouraged by the alignment of this Strategy and Action Plan with Bhutan's 13th Five-Year Plan and the national development priorities that place environmental sustainability and community empowerment at the forefront. The integrated approach linking species conservation with habitat management, research, education, and livelihood development sets a strong precedent for future conservation planning in Bhutan.

On behalf of the Department, I extend my sincere gratitude to all those who contributed to its development. I also appeal to all stakeholders, both within and beyond our borders, to join hands in safeguarding the golden langur and the rich biodiversity it represents. With collective effort and unwavering commitment, we can ensure that this majestic species continues to thrive in Bhutan's forests.

Tashi Delek

Karma Tenzin
Director

ACKNOWLEDGEMENT

I would like to extend my heartfelt appreciation to everyone involved in the development of this Conservation Strategy and Action Plan, which is a priority for the Nature Conservation Division in our pursuit of securing funding and ensuring the long-term protection of this unique and vital species.

In particular, I would like to thank the Nature Conservation Section focal officials from all field offices under the Department of Forests and Park Services for their valuable contributions to the drafting process. My sincere gratitude also goes to the core team from the Nature Conservation Division and Jigme Khesar Strict Nature Reserve for their leadership in formulating this plan and for their coordination with key stakeholders throughout its development. Further I would like to than Mr. Kuenzang Dorji for his critical review and comments.

This strategy and action plan development was possible with the funding support of the GEF-Ecotourism Project under the Department of Tourism and co-funded by WWF Bhutan.

Thank you,

Sonam Wangdi

Chief Forestry Officer

EXECUTIVE SUMMARY

The Golden Langur Conservation Strategy and Action Plan for Bhutan July 2025– June 2035 outlines a comprehensive strategy to safeguard the endangered golden langur (*Trachypithecus geei*) in Bhutan. Endemic to the southern foothills of the Eastern Himalayas, golden langurs face escalating threats from habitat fragmentation, electrocution, road kills, hybridization, and human-wildlife conflict. With populations declining by over 50% in recent decades, urgent and coordinated conservation action is essential.

This ten-year plan envisions a thriving golden langur population secured through sustained conservation efforts, sound knowledge management, and community-based coexistence strategies. The plan's overarching goal is to ensure the species' survival and ecological resilience while enhancing the livelihoods of local communities.

The Conservation Strategy and Action Plan is built around four core objectives:

- Ensure long-term survival of golden langur populations and habitats through mitigation of major threats such as electrocution and road kills by piloting canopy crossings, insulating electric cables, and strengthening habitat management including invasive species control.
- Enhance scientific knowledge through targeted research on langur ecology, habitat use, hybridization risks, and the impact of stray dogs and infrastructure development. A centralized monitoring system will be developed to support data-driven decision-making.
- Promote human-golden langur coexistence by mitigating crop damage through bio-fencing, controlling stray dog populations, and launching awareness campaigns. Conservation education and outreach materials will be developed to raise public support and reduce retaliatory killings.
- Develop community-based ecotourism around golden langur habitats to provide alternative livelihoods and economic incentives for local conservation stewardship. This includes capacity building, eco-tourism infrastructure, and interactive interpretation tools.

This Strategy and Action Plan strategically aligned with Bhutan's 13th Five-Year Plan (FYP), which prioritizes inclusive green socio-economic development, climate resilience, and biodiversity conservation. Many activities under this plan are directly integrated with the flagship programs of the 13th FYP, including forest landscape restoration, human-wildlife conflict mitigation, and eco-tourism promotion. This alignment ensures synergy with national development goals, policy coherence, and streamlined funding opportunities through Royal Government of Bhutan (RGoB) and conservation NGOs in Bhutan and internationally.

The total budget for implementing the GLCS over the next decade is Nu. 120.80 million, with the majority planned to finance through fund raising and RGoB initiative, complemented by funding from other national and international donors. Institutional coordination will be led by the Department of Forests and Park Services (DoFPS), with implementation supported by field offices and partners. Monitoring and evaluation will be conducted by the Forest Monitoring and Information Division (FMID) of the department to ensure effectiveness and adaptive management. This Strategy and Action Plan represents Bhutan's enduring commitment to biodiversity conservation, aligning ecological protection with cultural values and sustainable development. By

conserving the golden langur, Bhutan safeguards not only a flagship species but also the ecological integrity of one of the world's most unique Himalayan landscapes.

ACRONYMS

CITES	Convention on International Trade in Endangered species of wild fauna and Flora
DoFPS	Department of Forests and Park Services
DoL	Department of Livestock
EN	Endangered
FMID	Forest Monitoring and Information Division
G2C	Government to citizen
GLCP	Golden Langur Conservation Project
JSWNP	Jigme Singye Wangchuk National Park
Km^2	Square kilometer
MoAL	Ministry of Agriculture and Livestock
M&E	Monitoring and Evaluation
NCD	Nature Conservation Division
NGO	Non-Governmental Organizaiton
PWS	Phibsoo Wildlife Sanctuary
RMNP	Royal Manas National Park

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CHAPTER 1: BACKGROUND

1.1. Ecology, global status & distribution

The Golden Langur (*Trachypithecus geei*), also referred to as Gee's Golden Langur, is endemic to the southern Eastern Himalayas, specifically in Bhutan and northeastern India (Thinley et al., 2019). It inhabits a forested region in western Assam (India) situated between the Manas River to the east, Sankosh to the west (Bhutan), the Brahmaputra River to the south (India), and Jigme Singye Wangchuck National Park (Bhutan) to the north as shown in Figure 1 (Chatterjee et al., 2022; IUCN, 2025). The total known range of this species across both India and Bhutan is under 30,000 km², with much of it being unsuitable for habitation (Srivastava et al. 2001). In Bhutan, its range is confined to the southern foothills, including parts of Jigme Singye Wangchuck National Park (Trongsa, Wangduephodrang, Zhemgang), as well as the districts of Sarpang, Tsirang, and parts of Phibsoo Wildlife Sanctuary in Dagana (Choudhury, 2008; Thinley et al., 2020). The habitat of golden langur in India is heavily fragmented, with the southern group entirely separated from the northern group due to human activities (Chatterjee et al., 2022). In Bhutan, its habitat is restricted to small area, but it's connected through biological corridors between protected areas and outside the protected areas (Thinley et al., 2020). The species has been observed from the elevation of 150 masl to the elevations up to 2,607 meters (Wangchuk et al., 2008). The golden langur population in Bhutan occupies an area of approximately 3,136 km², while its population in India is found in an area of about 12265 km² (Chatterjee et al., 2022; Thinley et al., 2019).

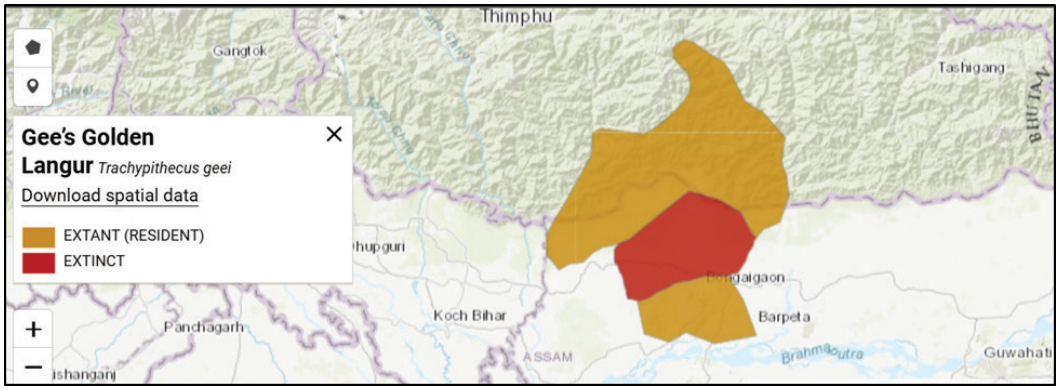


Fig 1: Distribution map of Golden Langur in India and Bhutan (IUCN, 2025).

The Golden Langur is classified as Endangered by International Union for Conservation of Nature (IUCN) due to a suspected population decline of over 50% across its entire range over the past three generations (36 years) (Mittermeier et al., 2007; Sanjay et al., 2003). In India, the decline is believed to exceed 60%, which is notably higher than in Bhutan (Chatterjee et al., 2022). This decline is primarily driven by habitat destruction resulting from increasing development projects, such as dam construction and forest conversion for settlements, in both countries (Chatterjee et al.,

2022). Between 2007 and 2012, the golden langur population in India was estimated at 5,600 individuals, while a recent assessment in Bhutan reported a population of 2,516 ± SE 363 individuals (Thinley et al., 2019). The species is listed in Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix I and is also protected under Schedule II of Bhutan's Forest and Nature Conservation Act 2023 (NAB, 2023; Wangchuk, 2005).

The Golden Langur primarily inhabits moist subtropical forests to cool broad leaved forests including chirpine forests and warm broadleaved forests in Bhutan (Thinley et al., 2019). It is occasionally found in degraded habitats with secondary growth and studies have indicated that the golden langurs can adapt to some degree of habitat alteration and survive in modified environment (Medhi et al., 2004). Golden Langurs primarily feeds on young leaves but also consumes mature leaves, ripe and unripe fruits, buds, and seeds (Choudhury, 1992, 2002). They have also been observed feeding on gum, soil, algae, burnt wild potatoes, snails, insects, and even aquatic plant (*Cryptocoryne retrospiralis*) (Choudhury, 2002). In fragmented forests, they may rely on cultivated crops for sustenance (Choudhury, 2002). This species is diurnal and arboreal, with its home range varying from 0.2 to 0.58 Km^2 depending on the quality of the habitat (Chetry et al., 2010).

1.2 Conservation of golden langur in the Bhutanese landscape

In Bhutan, golden langur is observed in the south-central part of Bhutan encompassing 34 Geogs (sub-districts or administrative blocks), within the six dzongkhags (districts) of Dagana, Sarpang, Trongsa, Tsirang, Wangduephodrang, and Zhemgang as shown in Figure 2 (Thinley et al., 2020). More than 54% of the golden langur were observed in three protected areas of Bhutan, Jigme Singye Wangchuck National Park (JSWNP), Phibsoo Wildlife Sanctuary (PWS) and Royal Manas National Park (RMNP) that covers only 33% of the total suitable area in Bhutan (Thinley et al., 2020). Golden langurs were usually isolated in the transboundary landscape of Bhutan and India, but several bridge constructions over the major rivers including Mangdechhu, Manas and Chamkharchhu might have favored geographical expansion breaking the barriers (Dorji et al., 2021; Thinley et al., 2020). It might have favored the hybridization with phylogenetically related capped langurs (*Trachypithecus pileatus*) (Thinley et al., 2020; Wangchuk, 2005)

Although the golden langur is classified as a protected species under Schedule II of the Forest and Nature Conservation Act of Bhutan 2023, it is adversely threatened from habitat fragmentation, electrocution, road kills and retaliatory killing (Thinley et al., 2020). A recent study reported a total of 107 incidences of golden langur mortality and injury from anthropogenic activities over a span of 7 years (Thinley et al., 2020). Of all reported incidents in this study, almost 46.7% are due to electrocution followed by 28% road kills, 14% dog kills, 5.6% retaliatory killing, 3.7% road injuries and 1.9% pet keeping (Thinley et al., 2020). The threat ranking in this study revealed hydropower, road, and housing development as topmost threat to golden langur followed by agriculture expansion and resource extraction as medium threat (Thinley et al., 2020). Pet keeping, retaliatory killing and hybridization with other genetically compatible langurs are treated as low threat (Thinley et al., 2020). Road kills and electrocution were threats that required immediate

attention for the mitigation, and most road kills occur along Gelephu-Sarpang road and Dakphel-Zhemgang road, and Dakphel-Tingtibi road (Thinley et al., 2020).

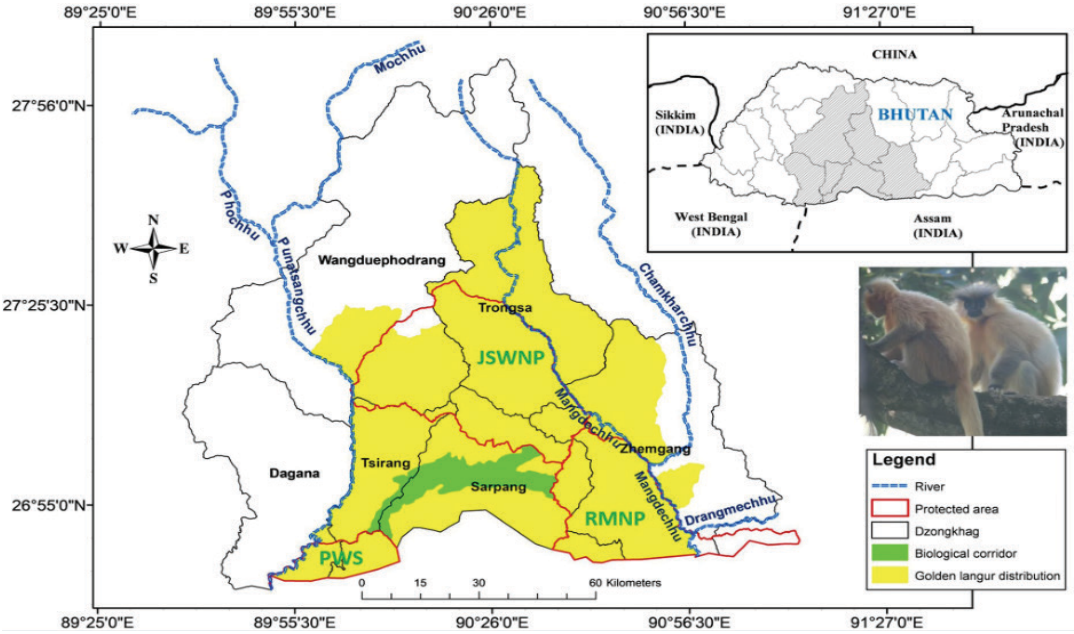
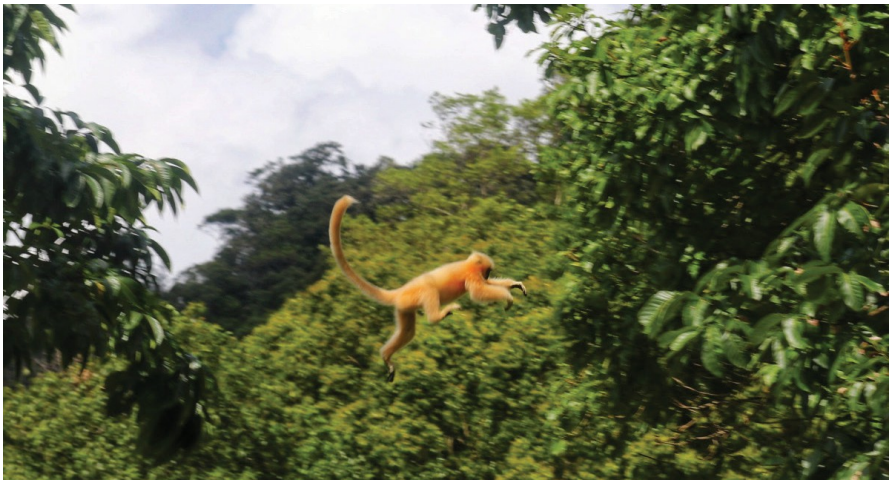


Figure 2. The map shows distribution of golden langur in different districts and protected areas of Bhutan. The inset map shows the location of Bhutan relative to the neighboring country and the shaded portion represents the distribution of golden langur. (Thinley et al., 2020)



Juvenile Golden Langur crossing road. Photo by Kado JSWNP

CHAPTER 2: THREAT AND CHALLENGES

2.1 Threats

In order to maintain ecologically stable population of the golden langur, it is imperative to understand threat to its population and habitat, and to rank and prioritize intervention measures. Some of the pertinent threats to the golden langur identified are electrocution, road kills, attack by stray dogs, retaliatory kill, and loss and fragmentation of their home range to development activities. We identified these threats through consultations with Key Informants (local leaders, communities, and civil servants) and further Focused Group Discussion. The threat ranking analysis was conducted using Miradi software, based on score values of *Low, Medium, High*, and *Very High* attained against three aspects of scope, severity and irreversibility. The culmination of overall threat rating considering these threats ranked **Medium** (Table 1) for the species. Some of the significant threats include electrocution, roadkill and dog kill. Furthermore, the prime habitats of the golden langur have significant threats from habitat loss and fragmentation.

Table:1 Ranking of threats/target based on scope, severity and irreversibility using Meradi software.

Threats\Targets	Objective 1: Ensure the long-term survival of golden langur populations & their habitats	Objective 2: Enhance knowledge on golden langur and its habitat	Objective 3: Promote human-golden langur co-existence through reduction of conflict	Objective 4: Promote wildlife and nature-based tourism to enhance conservation of golden langur and livelihood of local communities	Summary Threat Rating
Electrocution	Medium		Medium		**Medium**
Road kill	Medium		Medium		**Medium**
Predation by stray domestic dogs	Low	Medium	Medium		**Medium**
Retaliatory killing	Medium		Medium	Low	**Medium**
Habitat loss and fragmentation	Medium	Low	Medium	Medium	**Medium**
Hybridization with capped langurs	Low	Medium			**Low**
Summary Target Ratings:	**Medium**	**Medium**	**Medium**	**Low**	**Overall Rating** **Medium**

2.1.1 Electrocution

One of the major threats in the country is the high tension transmission line and rural electrification built across golden langur habitat which possess threats to the movement of golden langur that leads collision with wire and cause electrocution (Thinley et al., 2020). Electrocutions of golden langurs mostly happened on 440 kV (kilovolt) uninsulated exposed electric cables (Thinley et al., 2020) and similar was reported by local foresters during consultation of this strategy. There are

no incidents of golden langur electrocution on cross-country high- tension wires, because these are raised to very high heights by tall towers.

Insulating transmission lines in golden langur hotspot areas can help reduce mortality caused by electrocution. Additionally, constructing walkways and removing host or fruit-bearing trees near power lines may decrease the likelihood of golden langurs being attracted to electrical infrastructure.

Golden langur electrocuted by 440 kv uninsulated electric transmission lines. Photo contributed by Kado FR-I JSWNP.

2.1.2 Roadkill

Development of infrastructure such as roads in particular poses significant threat due to accidents in the form of roadkill and injuries and it is on raise recently (Chatterjee et al., 2022). Although, extensive study on the scale of road related mortality has been limited within the entire landscape, a study conducted by Thinley et al. (2019) from 2012 to 2019 has stated that road kills attribute second to electrocution in causing deaths and injuries. The same study reported that most of the road related mortality were observed along Gelephu-Sarpang road with flat terrain that encourages speeds faster than 100km/h. The other roads include Dakphel-Zhemgang and Dakphel-Tingtibi highways under Zhemgang district with frequent blind curve and roadside salt licks.

For the safe passage of the arboreal primate, installation of speed limit signages and speed breakers especially at strategic locations are recommended. Moreover, development of overhead crossways along roads will ensure safe movement across the disconnected home ranges.

Golden langur killed by motor vehicle on primary national highway. Photo by Kado Rinchen FR-I, JSWNP

2.1.3 Predation by stray dogs

The growing stray dog population threatens wildlife, especially species like the golden langur, as stray dogs prey on small mammals, birds, and young primates. A study in the Zhemgang, JSWNP, RMNP, and PWS area found out that 14% of golden langur casualties are due to dog kill (Thinley et al., 2019). Foresters reported that in places like Langthel under JSWNP, more than two golden langurs are killed by stray dogs annually.

Research into the impact of stray dogs on golden langurs is essential for developing effective conservation strategies. Partnering with the Ministry of Agriculture and Livestock (MoAL) on a sterilization program, alongside public awareness campaigns about responsible pet ownership, can help control the stray dog population and safeguard wildlife in the long run.

Golden langur killed by domestic dog in JSWNP. Photo by Kado Rinchen, FR-I, JSWNP

2.1.4 Retaliatory killing

Communities in Langthel under Trongsa District and several villages in Zhemgang District, including Dangkhar, Tali, Khekhar, Nyakhar, and Duenmang, have reported recurring crop losses due to langur foraging. Golden langurs typically do not raid crops, but stranded langurs due to habitat destruction have started doing so, causing conflict with farmers (Horwich et al., 2013). Such incidents fuel resentment among farmers and occasionally result in the killing of langurs, as reported by Thinley et al. (2019). These actions are often driven by a lack of awareness about the ecological importance of golden langurs and limited knowledge about conservation benefits (Thinley et al., 2019).

Mitigating these threats requires a combination of physical and social strategies. Installing hybrid fencing systems—including high-end, bio, and solar-powered electric fences—around agricultural fields can effectively reduce crop damage by preventing langurs from entering farmlands. Additionally, raising awareness among local communities about the ecological role of golden langurs and the long-term benefits of biodiversity conservation is essential. Education programs should emphasize the potential for nature-based tourism to provide alternative income sources, promoting peaceful coexistence. Community engagement and conservation advocacy are key to building local stewardship and reducing conflict. By addressing both human and wildlife needs, such measures can foster a more sustainable and harmonious relationship between farmers and golden langurs.

2.1.5 Habitat loss and fragmentation

Golden langur population had been greatly depleted due to a fragmented range and the species declining radically (Choudhury, 2002). In the neighboring Indian state of Assam habitat loss and fragmentation are the major threats to conservation of golden langurs (Chetry et al.2019; Choudhury 2001,2002). With fragmented habitat and isolated populations, there is less possibility of long-term survival of the species in the wild. According to (Horwich et al., 2013), community reforestation and forest protection play a vital role in safeguarding golden langur habitats and ensuring their survival.

The conservation of endangered primates can be strengthened by enriching their habitats through the plantation of palatable species and by safeguarding critical areas through the prioritization of primate habitats during the issuance of forestry clearances for developmental activities

2.1.6 Hybridization with capped langur

Hybridization between Capped langurs (*Trachypithecus pileatus*) and Golden langurs (*Trachypithecus geei*) is identified as a threat to the genetic integrity of the native golden langur in Bhutan. The presence of hybrid langurs has been suspected in the areas where the two species' habitats overlap, particularly in Zhemgang (Wangchuk 2005; Choudhury 2008). This hybridization is suspected in the upper reaches of the rivers, where there is a narrow river width, fallen trees due to landslide and flash floods (Chaudhury 2008), and developmental activities such as the construction of bridges over rivers that connect different populations (Wangchuk et al, 2001). These factors raise concerns about the potential for interbreeding between the species, which could dilute the genetic integrity of the Golden Langur.

The hybrids can be viable and capable of reproducing, increasing the risk of a hybrid swarm that could gradually dilute the unique genetic traits of the golden langur. If left unchecked, this could lead to the extinction of the golden langur as a separate species. Therefore, it is crucial to monitor the extent of hybridization and implement conservation measures to protect the genetic integrity of the golden langur population in Bhutan.

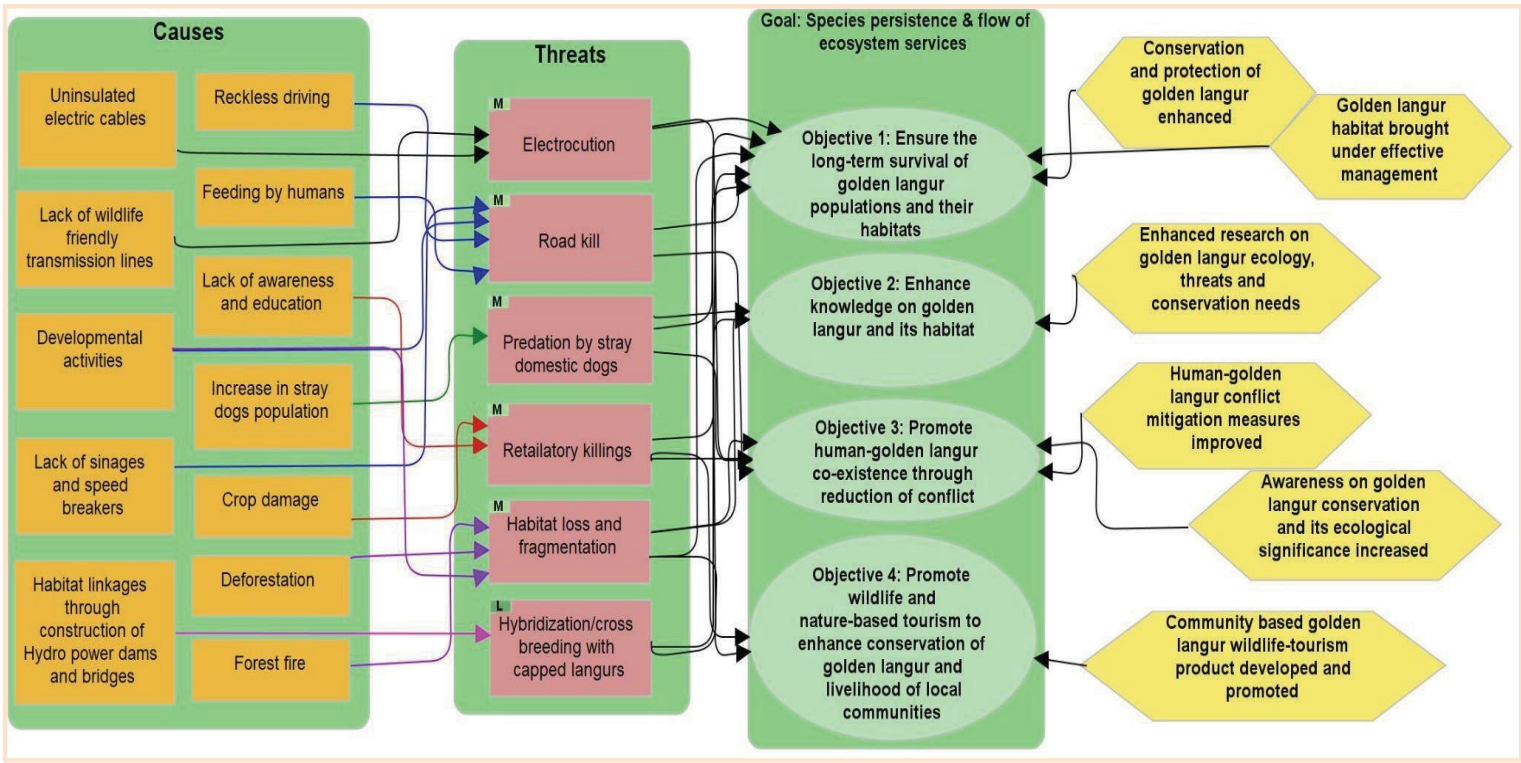


Figure 3: Conceptual framework for the conservation strategy and action plan developed based on threat, underlying causes and its mitigation measures.

2.2 Challenges

2.2.1. Absence of community engagement and lack of awareness

Most rural communities in Bhutan are settled close to forested areas, leading to direct and indirect impacts on wildlife habitats and species. Inadequate awareness about biodiversity conservation and limited participation in conservation efforts pose significant challenges to protecting the species such as golden langur and its habitat. Meaningful engagement of local communities is essential to maintain viable golden langur populations, ensure sustainable habitat management, and create opportunities for nature-based tourism centered on this species. Without fostering community stewardship and awareness, long-term conservation of the golden langur remains difficult to achieve.

2.2.2 Need for inter-agency collaboration

One of the important components of the biodiversity conservation is strong collaboration and coordination among agencies and different stakeholders, right from the planning process to implementation and monitoring phases. Therefore, common understanding amongst relevant stakeholders and inter-agency coordination is necessary by converging common ideas and objectives to overcome prevailing challenges. To mitigate the electrocution and roadkill of Golden langur, the Department of Forests and Park services (DoFPS) need to collaborate with Bhutan Power Corporation Limited (BPCL) and Bhutan Construction and Transport Authority (BCTA) and address these underlying issues.

Golden langur on electric transmission lines. Photo by Kado Rinchen FR-I, JSWNP.

2.2.3 Knowledge gap on Golden Langur by local people

Golden langur has been recognized as one of the world's 25 most endangered primate (Mittermeier et al., 2022). Despite its rarity and endangered status in the ecosystem, the conservation status of the species is not known by the local communities. It is mostly viewed as a common primate species by the locals. The knowledge gap and negligence triggers indiscriminate approaches towards species, threatening its viable population. Thus, a considerable awareness program is required to apprise them of the benefits and importance of conserving Langur habitat.

2.2.4 Limited resources and technical capacity

A major challenge for conservation in Bhutan is the shortage of financial resources and technical expertise required for advanced research and species-specific management. There are only a few experts specializing in the conservation of species like the golden langur. Additionally, the Department of Forests and Park Services (DoFPS) faces human resource constraints, as staff are often occupied with delivering essential forestry services to communities. Conservation initiatives also rely heavily on external donor funding, making long-term sustainability uncertain and hindering comprehensive efforts for species protection and habitat management.

Golden langur foraging. Photo by Kado Rinchen, FR-I, JSWNP

CHAPTER 3: ACTION PLAN

3.1. Vision, Goals, and Objectives

3.1.1. Vision

"Ensure an ecologically stable population of golden langur within its landscape through sustained conservation efforts in Bhutan".

3.1.2. Goal

Survival of golden langur is ensured through sustainable conservation effort, sound knowledge management, and promotion of coexistence through alternative livelihood approaches.

3.1.3 Objectives

Objective 1: Enhance knowledge on golden langur and its habitat.

Objectives 2: Ensure the long-term survival of golden langur populations and their habitats.

Objectives 3: Promote human-golden langur co-existence through reduction of conflict.

Objectives 4: Promote wildlife and nature-based tourism to enhance conservation of golden langur and livelihood of local communities.

Objective 1: Enhance knowledge on golden langur and its habitat.
Rationale

Golden langur like most langurs, have a predominantly wide-ranging diet and consists of young and mature leaves, ripe and unripe fruits, leaf buds, flower buds, seeds, twigs, and flowers. However, very less is known on its diet preference and resource selection across different natural habitat (Chetry et al., 2010; Dorji et al., 2021; Wayre, 1968). The Golden Langur is threatened all over its habitat in Bhutan from rapid loss of habitat, occasional deaths by electrocution and road accidents. Some are killed by domestic dogs and some by retaliation. Further, there is probable hybridization of the golden langur with other langur species (Chetry et.al, 2022). For better understanding and to build robust knowledge on golden langur for the harmonious coexistence with humans, following actions are proposed.

Output 1.1: Enhanced research on golden langur ecology, threats and conservation needs

Action 1.1.1: Conduct research on golden langur population, distribution, habitat and ecology in Bhutan.

Action 1.1.2: Conduct research on the impact of stray dogs on golden langur and prevalences of zoonotic diseases.

Action 1.1.3: Conduct research on assessing genetic integrity and potential hybridization of golden langur with other langur species in Bhutan.

Action 1.1.4: Research on feeding and movement ecology of golden langur in its habitat.

Action 1.1.5: Conduct a study on the extent of human-golden langur conflict, including mapping the most conflict-prone areas.

Action 1.1.6: Conduct a study on the impact of power transmission lines on golden langur.

Objectives 2: Ensure the long-term survival of golden langur populations and their habitats.

Rationale

Bhutan is a developing nation, where activities like construction of road networks and hydroelectric projects are gaining its rapid pace that leads to degradation and fragmentation of forest land. Invasive Alien Species such as *Lantana* sp., *Eupatorium* sp., *Chromolaena* sp., and others are replacing natural foraging habitat of golden langur. Hence for the long-term survival of the golden langur and their habitat, the following actions need to be implemented.

Output 2.1: Conservation and protection of golden langur enhanced.

Action 2.1.1: Pilot golden langur crossings along the electric transmission lines and roads to mitigate electrocution and road kills.

Action 2.1.2: Initiate construction of insulated transmission electric cable lines within the golden langur hotspot areas in collaboration with relevant stakeholders.

Action 2.1.3: Install cautionary signages at golden langur movement corridors along the roads.

Action 2.1.4: Strengthen SMART patrolling programs in golden langur habitats through increased patrolling frequencies and providing field gears.

Action 2.1.5: Develop golden langur monitoring mobile applications to collect, store and analyze data for making informed conservation and management decisions.

Output 2.2: Habitat conservation of golden langur enhanced

Action 2.2.1: Identify and map the primary habitat of golden langur to understand habitat preferences for conservation, protection and monitoring.

Action 2.2.2: Improve golden langur habitat through enrichment plantation, invasive species control, waterholes and mineral licks management.

Objectives 3: Promote human-golden langur co-existence through reduction of conflict.

Rationale

Golden langurs are considered harmless in many Bhutanese villages but increasingly perceived as agricultural pests elsewhere in the country, particularly in Langthel geog of Trongsa and Patshaling geog of Tsirang. A possible cause is agricultural expansion into natural forest habitat, thereby increasing the likelihood of crop raiding by langurs (Thinley et al., 2017). Additionally, forest timber collection for domestic use in Bhutan can potentially disrupt the canopy used by langurs,

which in turn, affects feeding and foraging behavior as observed with other primates (Naher et al., 2017). Golden langurs are found to cause crop damage when their habitats are severely fragmented by agriculture (Roy & Nagarajan, 2018). More residents outside protected areas were unaware of the golden langur's protected and endangered status compared with protected area residents, despite its occurrence outside protected areas. This is probably due to non-protected area residents receiving less exposure to conservation awareness campaigns run by park authorities (Thinley et al., 2018). Therefore, activities that fosters community stewardship towards golden langurs are prescribed as follows:

Output 3.1: Human-golden langur conflict mitigation measures improved.

Action 3.1.1: Install hybrid fencing solutions including high-end fencing, bio-fencing, and solar-powered fencing to mitigate human-wildlife conflict.

Action 3.1.2: Conduct sterilization of stray dogs in collaboration with the Department of Livestock (DoL) to reduce the risks of predation on golden langur.

Action 3.1.3: Pilot automatic animal repelling equipment (timer-based, AI-based animal repellent).

Output 3.2: Awareness on golden langur conservation and its ecological significance increased.

Action 3.2.1: Develop golden langur conservation awareness materials (information board, documentary, posters, pamphlets, and souvenirs)

Action 3.2.2: Conduct periodic golden langur conservation awareness by leveraging social media platforms

Objectives 4: Promote wildlife and nature-based tourism to enhance conservation of golden langur and livelihood of local communities.

Promoting ecotourism, particularly wildlife-based tourism, provides an enormous potential to contribute positively to help improve the national economy (Gurung & Seeland, 2008). Bhutan's potential as a nature or eco-tourism destination has not been fully explored. In a world where solitude, pristine environment and clean air have become rare commodities, Bhutan must tap into its ecotourism potential to showcase the endangered wildlife species (Gurung & Seeland, 2008) such as golden langur. This will go a long way in enhancing the lives and livelihoods of people in the golden langur habitat by engaging local communities and other vulnerable groups in the sustainable production of tourism products and services and ensure its benefits are reaped widely and fairly.

Output 4.1: Community based golden langur wildlife-tourism product developed and promoted

Action 4.1.1: Establish community-based golden langur tourism products (homestay, campsite, trails, visitor centers, sculptures and other amenities such as watch towers).

Action 4.1.2: Build capacity of local communities on wildlife tourism and operation

Action 4.1.3: Design and install interactive signages for golden langur conservation (QR codes).

CHAPTER 4: IMPLEMENTATION PLAN AND BUDGET OUTLAY

4.1. Institutional Arrangements

The Plan implementation will be coordinated by Nature Conservation Division in collaboration with functional divisions, and UWIFoRT, Field offices and other relevant stakeholders. However, the activities will be implemented by the field offices through larger Golden langur landscapes-based projects with RGOB funding, and other donor funded projects or through smaller site-based projects.

4.2 Work Plan and Budget

The major portion of funding for this ten year (July 2025 - June 2035) golden langur strategy and action plan are secured from the 13th five-year plan of the RGoB as most of the activities are aligned with the plan. However, funding from international donors will be sourced to cover golden langur strategies where funding is not secured. The action plan is structured into four objectives, 6 outputs and a total of 21 specific actions outlined in the implementation framework (Table 2 & Figure 3). The Total budget required for the implementation of the golden langur strategy an action plan for the next ten years is Nu. 120.80 million.

Table 2: Work plan and Budget

Vision: "Ensure an ecologically stable population of golden langur within its landscape through sustained conservation efforts in Bhutan".											
Goal: Survival of golden langur is ensured through sustainable conservation effort, sound knowledge management, and promotion of coexistence through alternative livelihood approaches	**(Budget in Million Ngultrum)**										
Activities	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	**Sub-Total**
Objective 1: Enhance knowledge on golden langur and its habitat.											
Output 1.1: Enhanced research on golden langur ecology, threats and conservation needs											
Action 1.1.1: *Conduct research on golden langur population, distribution, habitat and ecology in Bhutan.*		1		1.5		1.5		2		2	8
Action 1.1.2: *Conduct research on the impact of stray dogs on golden langur and prevalences of zoonotic diseases*			2			3			3		8
Action 1.1.3: *Conduct research on assessing genetic integrity and potential hybridization of golden langur with other langur species in Bhutan*	0.8							1			1.8
Action 1.1.4: *Research on feeding and movement ecology of golden langur in its habitat*	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	16

Action 1.1.5: *Conduct a study on the extent of human-golden langur conflict, including mapping the most conflict-prone areas/sites*	0.8		0.8		0.8		0.8		0.8		4
Action 1.1.6: *Conduct a study on the impact of power transmission lines on golden langur*			0.8								0.8
Objectives 2: Ensure the long-term survival of golden langur populations and their habitats											
Output 2.1: Conservation and protection of golden langur enhanced.											
Action 2.1.1. *Pilot golden langur crossings along the electric transmission lines and roads to mitigate electrocution and road kills*		1		1.5		1.5		2		2	8
Action 2.1.2. *Initiate construction of insulated transmission electric cable lines within the golden langur hotspot areas in collaboration with relevant stakeholders.*			2			3			3		8
Action 2.1.3. *Install cautionary signages at golden langur movement corridors along the roads.*	0.8							1			1.8
Action 2.1.4. *Strengthen SMART patrolling programs in golden langur habitats through increased patrolling frequencies and providing field gears*	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	16
Action 2.1.5. *Develop golden langur monitoring mobile applications to collect, store and analyze data for making informed conservation and management decisions.*	0.8		0.8		0.8		0.8		0.8		4

Output 2.2: Habitat conservation of golden langur enhanced											
Action 2.2.1. *Identify and map the primary habitat of golden langur to understand habitat preferences for conservation, protection and monitoring.*	4						4				8
Action 2.2.2. *Improve golden langur habitat through enrichment plantations, invasive species control, waterholes and saltlicks management*		2.4			2.4			2.4			7.2
Objective 3: Promote human-golden langur co-existence through reduction of conflict.											
Output 3.1: Human-golden langur conflict mitigation measures improved											
Action 3.1.1: Install hybrid fencing solutions including high-end fencing, bio-fencing, and solar-powered fencing to mitigate human-wildlife conflict				3					3		6
Action 3.1.2: Conduct sterilization of stray dogs in collaboration with the Department of Livestock (DoL) to reduce the risks of predation on golden langur				0.8							0.8
Action 3.1.3: Pilot automatic animal repelling equipment (timer-based, AI-based animal repellent)			1		1			1		1	4
Output 3.2: Awareness on golden langur conservation and its ecological significance increased											

Action 3.2.1: Develop golden langur conservation awareness materials (Information board, documentary, posters, pamphlets, and souvenirs)		0.8		0.5	0.8			0.8			2.9
Action 3.2.2: Conduct periodic golden langur conservation awareness by leveraging social media platforms					0.2						0.2
Objective 4: Promote wildlife and nature-based tourism to enhance conservation of golden langur and livelihood of local communities											
Output 4.1: Community based golden langur wildlife-tourism product developed and promoted											
Action 4.1.1: Establish community-based golden langur tourism products (homestay, campsite, trails, visitor centers, sculptures and other amenities such as watch towers)						7	2		3		12
Action 4.1.2: Build capacity of local communities on wildlife tourism and operation								0.5	0.5		1
Action 4.1.3: Design and install interactive signages for golden langur conservation (QR codes)			0.8					0.8			1.6
PLAN MONITORING					0.7						0.7
Grand Total (Nu) in million											**120.8**

CHAPTER 5: MONITORING AND EVALUATION

5.1 Monitoring and Evaluation

Monitoring and evaluation (M&E) are critical components of effective management. Monitoring is an ongoing process that involves collecting and analyzing data to compare actual outcomes with planned results, ensuring that the program is being implemented as intended.

The Forest Monitoring and Information Division (FMID) is responsible for the monitoring and evaluation (M&E) of all conservation plans. The overall M&E of the action plan will be conducted according to the Monitoring and Evaluation Framework prepared within the scope of this action plan by FMID in coordination with implementing agencies (FMID, 2024).

Responsible agencies, as outlined in the activity implementation responsibility, will lead the implementation and ensure the quality of activity implementation. An annual activity implementation progress status will be submitted by the respective implementing partners to FMID. FMID will maintain a record of each progress as per the indicator and the indicator measurement unit. The plan's evaluation will be done at mid-term and at the end of the plan period by FMID, ensuring that the activities are on track and achieved (Table 3).

Golden langur on roadside mineral licks. Photo by Kado Rinchen, FR-I, JSWNP

Table 3: Monitoring and Evaluation Framework

Activities		Action Indicator	Baseline	Unit	Yearly Target									
					Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Objective 1: Enhance knowledge on golden langur and its habitat.														
Output 1.1: Enhanced research on golden langur ecology, threats and conservation needs														
Action 1.1.1	*Conduct research on golden langur population, distribution, habitat and ecology in Bhutan.*	*Technical report published*	0	Number					2					2
Action 1.1.2	*Conduct research on the impact of stray dogs on golden langur and prevalences of zoonotic diseases*	*Technical report published*	0	Number			1					1		
Action 1.1.3	*Conduct research on assessing genetic integrity and potential hybridization of golden langur with other langur species in Bhutan*	*Technical report published*	1	Number					1					
Action 1.1.4	*Research on feeding and movement ecology of golden langur in its habitat*	*Technical report published*	0	Number		1								
Action 1.1.5	*Conduct a study on the extent of human-golden langur conflict, including mapping the most conflict-prone areas/sites*	*Study conducted and report produced*	0	Number						1				

Activities		Action Indicator	Baseline	Unit	Yearly Target									
					Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Action 1.1.6	*Conduct a study on the impact of power transmission lines on golden langur*	*Study conducted and report produced*	0	Number			1							
Objectives 2: Ensure the long-term survival of golden langur populations and their habitats														
Output 2.1: Conservation and protection of golden langur enhanced.														
Action 2.1.1	*Pilot golden langur crossings along the electric transmission lines and roads to mitigate electrocution and road kills*	*Number of golden langur crossings constructed*	0	Number		2		3		3		4		4
Action 2.1.2	*Initiate construction of insulated transmission electric cable lines within the golden langur hotspot areas in collaboration with relevant stakeholders.*	*Number of sites replaced with insulated cable line wires*	0	Number			1			2			2	
Action 2.1.3	*Install cautionary signages at golden langur movement corridors along the roads.*	*Number of signages installed*	3	Number	50							50		
Action 2.1.4	*Strengthen SMART patrolling programs in golden langur habitats through increased patrolling frequencies and providing field gears*	*Number of planned SMART patrol conducted*	20	Number	16	16	16	16	16	16	16	16	16	16
Action 2.1.5	*Develop golden langur monitoring mobile applications to collect, store and analyze*	*Number of reports generated*	0	Number	1		1		1		1		1	

Activities		Action Indicator	Baseline	Unit	Yearly Target									
					Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
	data for making informed conservation and management decisions.													
Output 2.2: Habitat conservation of golden langur enhanced														
Action 2.2.1	*Identify and map the primary habitat of golden langur to understand habitat preferences for conservation, protection and monitoring.*	*Survey report produced*	0	Number	1						1			
Action 2.2.2	*Improve golden langur habitat through enrichment plantations, invasive species control, waterholes and saltlicks management*	*Area brought under habitat enrichment*	0	Hectares		120			120			120		
Objective 3. Promote human-golden langur co-existence through reduction of conflict														
Output 3.1 Human-golden langur conflict mitigation measures improved														
Action 3.1.1	*Install hybrid fencing solutions including high-end fencing, bio-fencing, and solar-powered fencing to mitigate human-wildlife conflict*	*Length of hybrid/high-end/bio-fencing and solar fencing installed*	~	Km				10					10	
Action 3.1.2	*Conduct sterilization of stray dogs in collaboration with the Department of Livestock (DoL) to reduce the risks of predation on golden langur*	*Number of stray dogs sterilized*	~	Number				30						

Activities		Action Indicator	Baseline	Unit	Yearly Target									
					Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Action 3.1.3	*Pilot automatic animal repelling equipment (timer-based, AI-based animal repellent)*	*Number of piloted sites*	0	Number			50		50			50		50
Action 3.2.1	*Develop golden langur conservation awareness materials (Information board, documentary, posters, pamphlets, and souvenirs)*	*Number of different conservation awareness materials developed*	4	Number		8		5	8			8		
Action 3.2.2	*Conduct periodic golden langur conservation awareness by leveraging social media platforms*	*Awareness report produced*	0	Number				5						
Action 4.1.1	*Establish community-based golden langur tourism products (homestay, campsite, trails, visitor centers, sculptures and other amenities)*	*Community-based tourism products developed*	0	Number						1	1		1	
Action 4.1.2	*Build capacity of local communities on wildlife tourism and operation*	*Number of individuals trained*	0	Number								20	20	
Action 4.1.3	*Design and install interactive signages for golden langur conservation (QR codes)*	*Number of interactive signages installed*	0	Number			4					4		
PLAN MONITORING AND EVALUATION									1					1

CONCLUSION

The Golden Langur Conservation Strategy and Action Plan (July 2025– June 2035) serves as a timely and strategic roadmap to ensure the survival of one of Bhutan's most iconic and endangered species. Anchored in a holistic landscape-level approach, the plan prioritizes science-based conservation, community engagement, and inter-agency collaboration to address pressing threats such as habitat loss, electrocution, road kills, and human-wildlife conflict. By focusing on four core objectives habitat protection, knowledge enhancement, coexistence promotion, and eco-tourism development the plan aims to secure viable golden langur populations while supporting local livelihoods.

Importantly, it is well-aligned with Bhutan's 13th Five-Year Plan and contributes to the country's overarching goals of climate resilience, green economic development, and biodiversity protection. The plan reflects Bhutan's environmental leadership and its commitment to the constitutional mandate of maintaining 60% forest cover.

Successful implementation will depend on strong partnerships among government agencies, local communities, NGOs, and international donors. With an estimated budget of Nu. 120.8 million, the plan outlines a clear path for resource mobilization and accountability through robust monitoring and evaluation mechanisms. Ultimately, conserving the golden langur is not just about saving a species it is about safeguarding Bhutan's ecological heritage and ensuring the sustainability of its rich natural landscapes for future generations.

Golden langur on suspension bridge. Photo by Kado Rinchen, FR-I, JSWNP

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