Namphula-Gaytala Key Biodiversity Area Conservation Action Plan

"Co-occurrence of threatened species and heart of faunal conservation"

Divisional Forest Office, Gedu
Department of Forests and Park Services
Ministry of Energy and Natural Resources
2023

Royal Government Endorsement and Approval

Namphula-Gaytala Key Biodiversity Area Conservation Action Plan
(1st July 2023 – 30th June 2033)

"In accordance with and as per the provisions of the Forest and Nature Conservation Act of Bhutan, 1995"

Submitted for Approval

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

FOREWORD

Bhutan's rich biodiversity has been secured by the network of protected areas for the past many decades. However, the state of forests and biodiversity are equally rich beyond the protected areas in Bhutan. On the contrary, the areas beyond protected areas faces considerable threats from anthropogenic disturbances and economic development, and this poses risk to many globally threatened habitats and species found therein. Across the globe, such areas of conservation significance have been addressed by the "other effective area-based conservation measures" or OECMs, an area set aside towards achieving the long term and effective in-situ conservation of biodiversity outside of protected areas. OECMs complement protected areas through sustained, positive conservation outcomes, even though they may be managed primarily for other reasons.

The Key Biodiversity Areas (KBA) in Bhutan, at a global scale is part of the OECMs and is, therefore, adopted towards securing conservation of areas and species that are of conservation significance in Bhutan. Of the many potential KBA sites in the country, the Department has identified and prioritized 11 sites in various Divisional Forest Offices, that requires urgent conservation interventions. For these 11 sites, key interventions have been identified, and has been and is being presented in this conservation action plan as per the guidelines on KBA. The KBA sites classified will serve as in-situ conservation of biodiversity beyond the protected areas.

These classified KBAs are expected to bring in improved conservation outcomes, that are crucial for the functioning of the environment through the provision of essential ecosystem services. It is essential for the processes that support all life on Earth, including humans. These KBAs are expected to address the issues of biodiversity loss and ecosystem degradation due to threats such as pollution, overexploitation of natural resources, introduction of invasive species and habitat loss.

I am happy to note that we continue to prioritize conserving our natural resources, while balancing ourselves with the need to economically develop the nation. I applaud all concerned officials from the Department for coming up with this conservation action for the first set of KBAs classified in the country and wish you all success in implementing the actions.

(Lobzang Dorji)
Director

Acronyms

KBA	Key Biodiversity Areas
IUCN	International Union for Conservation of Nature
NCD	Nature Conservation Division
KM^2	Square Kilometers
Masl	Meters Above Sea Level
NBSAP	National Biodiversity Strategy and Action Plan
HWC	Human-Wildlife Conflict
NCD	Nature Conservation Division
DFO	Divisional Forest Office
DoFPS	Department of Forests and Park Services

Table of Contents

Chapter 1: Introduction

Key Biodiversity Areas(KBA) are sites that contribute significantly to the global persistence of biodiversity (IUCN, 2016). KBA is a "unifying framework" which was felt necessary by the IUCN members during the World Conservation Congress held in 2004 in Bangkok and led to the development of "Global Standards for identification of Key Biodiversity Areas" across different taxonomies and ecosystems in the year 2016 through regional consultations.

National Biodiversity Strategy and Action Plan (NBSAP) of Bhutan specifies the urgent need for classifying conservation areas like KBA in order to address the emerging threats and challenges to biodiversity loss(NBC, 2014) and in accordance Forest and Nature Conservation Act of Bhutan 1995(MoAF, 1995). At the national level, a "Guideline for Classifying and Managing Key Biodiversity Areas in Bhutan" is developed in the year 2020(NCD, 2020). Accordingly, Key Biodiversity Areas were identified based on the nomination form for the KBA identification in field Divisions outside protected area. Divisional Forest Office, Gedu identified the Namphula-Gaytala Area as the KBA which falls in Bongo and Getana Gewog under Chukha Dzongkhag. Namphula-Gaytala KBA is located entirely under the Divisional Forest Office, Gedu covering an area of 253 $km^{2.}$ with an elevation gradient of 1685-4173 masl and an aerial distance of 36.6 km in the north-south direction. The KBA is nominated and identified based on the KBA identification triggered by the Threatened Species viz; Tiger, Asian Elephant, and Himalayan Red Panda under the Criteria Threatened Species A1(NCD, 2020). Namphula-Gaytala Mountain Ridge is considered the diverse faunal species-area and the heart of faunal species survivability considering the diversity of species recorded and the presence of suitable habitat area. Other faunal species found within the KBA area are *Panthera uncia, Sus scrofa, Rusa unocolor, Cuon alpinus, Muntiacus muntjac, Ursus thibetanus, Panthera pardus, Lophura leucomelanos, Arbolophila rufogularis, Lophophorus impejanus, Tragopan satyra, Zoothera dauma, Blythipicus pyrrhotis, Phylloscopus xanthoschistos, Myophonus caeruleus, Garrulax straitus, Trochalepteron imbricatum, Leiothrix lutea, Pycnontous cafer, Pycnonotus straitus, Phylloscopus maculipennis, Arborophila torqueola, Arborophila rufogularis, Aceros nipalensis, Spilornis cheela, Lophotriorchis kienerii, Glaucidium brodiei, Trochalepteron erythrocephalum, Phylloscopus chloronotus, Zoothera dixoni, Minla strigula, Yuhina flavicollis, Aegitahlos concinnus, Parus monticolus,* and *Glaucidium radaitum*. The mammal data is obtained from the National Tiger Survey data and

Red Panda Survey through Camera trapping (DoFPS, 2015; Letro et al., 2022) supplemented by bird species listed during transact survey for KBA area species listing.

The forest types found under the Namphula-Gaytala KBA are Warm Broadleaved forests, Cool broadleaved forests, and Rhododendron, and Fir Forests (Dorji et al., 2021). Floral species found in the KBA area are *Persea clarkeana, Chimnobambus callosa, Vaccinium nummolaria, Elatoseama sessile,Tetrastigma sp, Symplocos ramosissima, Hemidesmus indicus, Streptolirion volubile, Persea sp, Smilax sp, Ainsliea aptera, Pilea sp, Aconogonon molle, Quercus lamellose, Daphne bohlua, Rhododendron Hodgsonii, Selaginella sp, Agapetes sp, Lindera pulchirimma, Carex sp, Synotis alata, Cardamine sp, Lithocarpus patchyphyllus, Magnolia campbelli, Rubus lineolatum, Pouzoulzia hirta, Eurya acuminate, Daphnephyllum himalense, Lyonia ovalifolia, Viburnum eurubescens, Rubus treutleri, Schefflera sp, Goodyera schlechlendaliana, Ilex sp, Gamblea cillata, Acer campbelli, Yushania malling, Goodyera vitata, Streptopus simplex, Frageria nubicola, Utrica spp, Hypericum grifithii, Taxas baccata, Rubus paniculatus, Anaphallis busua, Enkianthus deflexus, Rosa macrophylla, Hemiphragma heterophyllum, Lycopodium sp, Dryopteris spp, Sorbus microphyllus, Rhododendron arboretum, Pieres Formosa, Rhododendron argipelum, Sorbus heldundii, Rhododendron kesangaie, Buddleja sp, ligustrum confusum, Vaccinium vaccinium, Berberis aristata, Symplocos paniculata, Myrseine semiserrata, Rhododendron falconeri, Vaccinium glaucoalbum, Ageratina adenophora, Plantago decursiva, Acer oblongum, Cephalostatchyum latifolium, Beilchmiedia glomerata, Magnolia doltsopa, Toona cillata, Macropanax dispermus, Artemesia myrantha, Colebrookea oppositifolia, Dichora febrigua, Lithocarpus elegans, Jasmanium sp, Piper pedicillatum, Elaeocarpus lancefolius, Achyranthes sp, Swertia bimaculata, Rubia cordifolia, Ardisia macrocarpa, Rhus chinensis, Persea fructifera, Glochidion sp, Grewia sp, Hydrocotyle nepalensis, Macaranga denticulate, Rumex nepalensis, Castanopsis tribuloides, Sauraria nepalensis, Persicaria runcinata, Trifolium repens, Galingsoga parviflrora, Lomatogonium sp, Bidens pilosa, Edgeworthia gardneri, Alcimandra carthcartii, Raphidophora decursiva, Hydechium spicata, Cinnamomum tamala, Solanum viarum, Exbucklandia populnea, Casearia glomerata,* and *Cinnamomum bejalghota*.

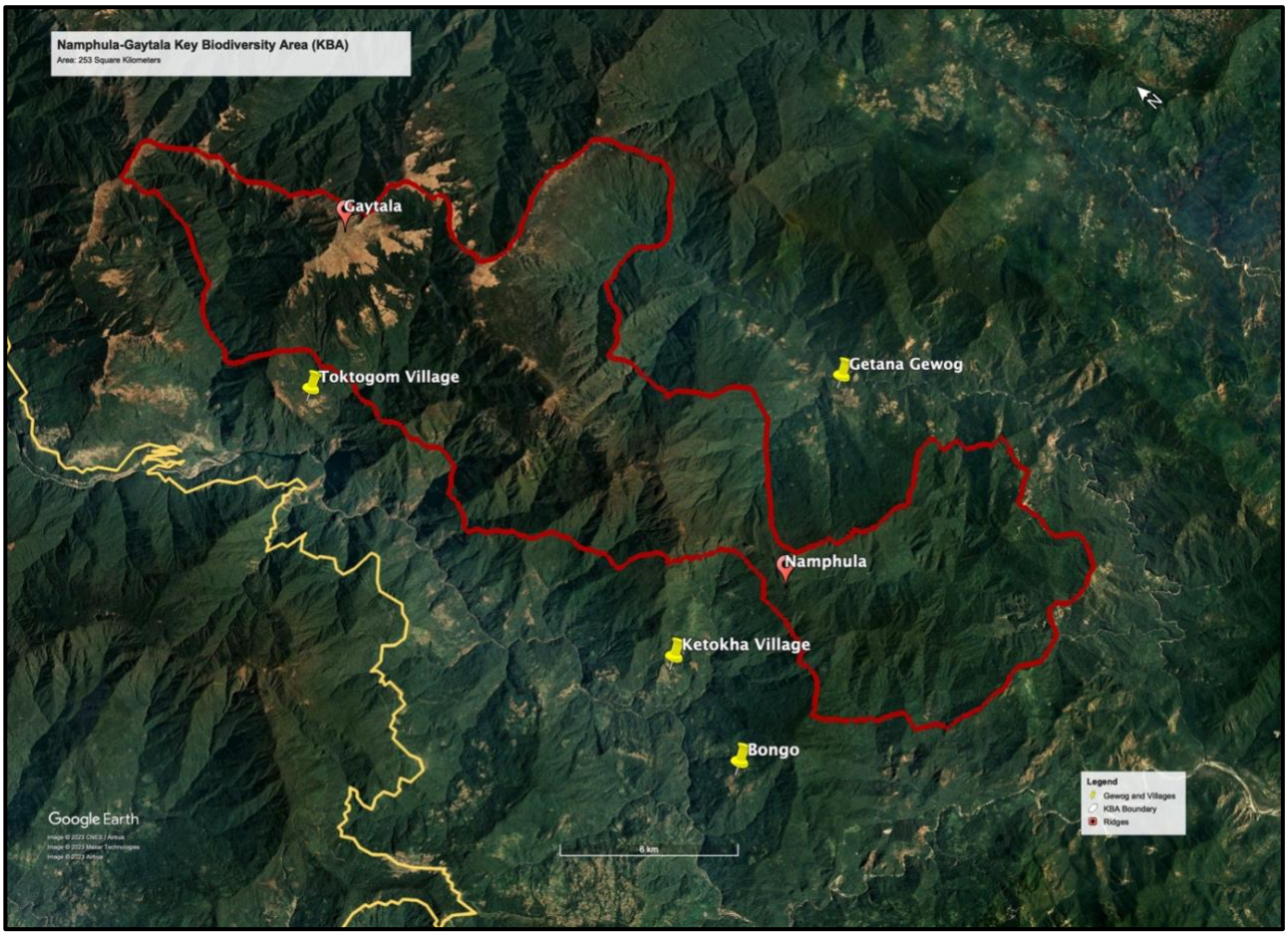

Figure 1: Map of Namphula-Gaytala KBA

Chapter 2: Threats and Challenges

2.1 Threats

2.1.1 Habitat Degradation and Fragmentation

Developmental activities such as Gewog road/farm road, Telecommunications tower constructions & transmission line construction and maintenance are the major threat to the species survival and migration which are concentrated in the Namphua area along the Getana Gewog road. The habitat along the Namphula area is degraded and fragmented obstructing the migratory routes mainly for Tiger and Elephant. There was record of elephant sighting in the upper area of Namphu area in the year 2014, however after the construction of the Getana Gewog Road, there is no record of the elephant sightings/capture in camera traps during the camera trap surveys conducted by DFO, Gedu as part of Nationwide Tiger Survey and Red Panda Survey in South-western Bhutan.

2.1.2 Poaching and Retaliatory Killing

Snares and traps are found especially along the Namphula area, the lower part of the KBA area due to Gewog road construction and maintenance workers staying along the road. Retaliatory killings are often occurring due to the HWC in and around the HCV area where there are cattle herders and settlements.

2.1.3 Species Loss and Habitat Disturbance

There are about 18 Cattle/yak herders along the Namphula-Gaytala rigdge and slopes which is dependent on the forest resources for fuelwood and grazing. The cattle herders are mostly concentrated in lower elevation those who are from Gedpahu, Ketokha, and Phutsa villages and Yake herders in the higher elevation of Gaytala area who are pastoral migrants from Dagala gewog under Thimphu Dzongkhag.

2.1.4 Illegal Timber Harvesting and Stone quarry

Increased timber extraction for rural use with increased population and commercial activities coupled with Illegal Timber Harvesting along the Getena Gewog road and Farm roads of Ketokha, Phutsa, Toktogom villages and stone quarry for gewog/farm road constructions are becoming an imminent threat to the habitat deterioration and species migration in the KBA area.

2.2 Threat Rating

Threat Ranking Tool (Miradi software) is used for the ranking of the threats that are identified along with their causes. The strategies and actions are planned accordingly to achieve the desired goal of the KBA. The threat ranking is done on the basis of three criteria that are *scope, Severity* and *Irreversibility* (Permanence) with four levels of ranks (Very High, High, Medium & Low). The *scope* refers to the proportion of the area that is likely to be affected within 10 years, the *severity* refers to the level of damage within a particular scope and *irreversibility* refers to the degree of effect that can be undone/reversed considering the threat is put to halt. The four major threats to the conservation of Namphula-Gaytala KBA area are ranked in the Miradi software and the overall threat rating is at a *Medium* level (**Figure 2**).

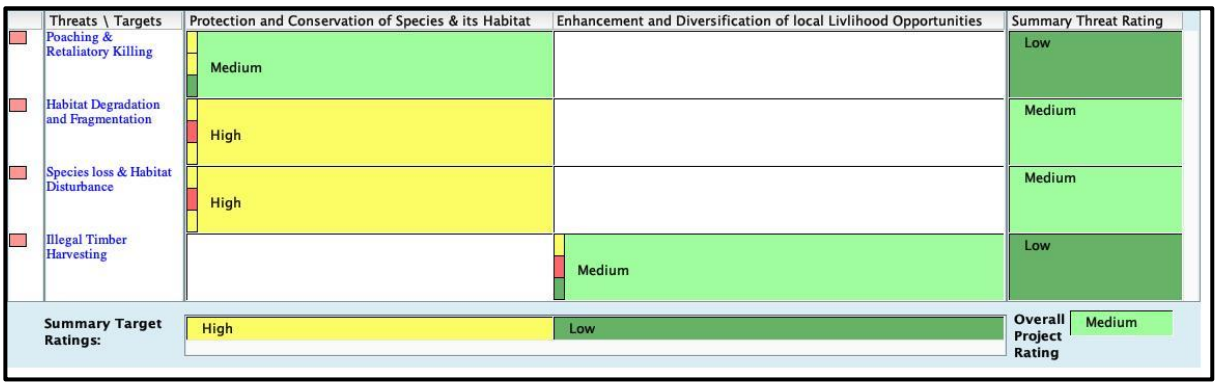

Figure 2: Miradi Threat Rating(Miradi, n.d.)

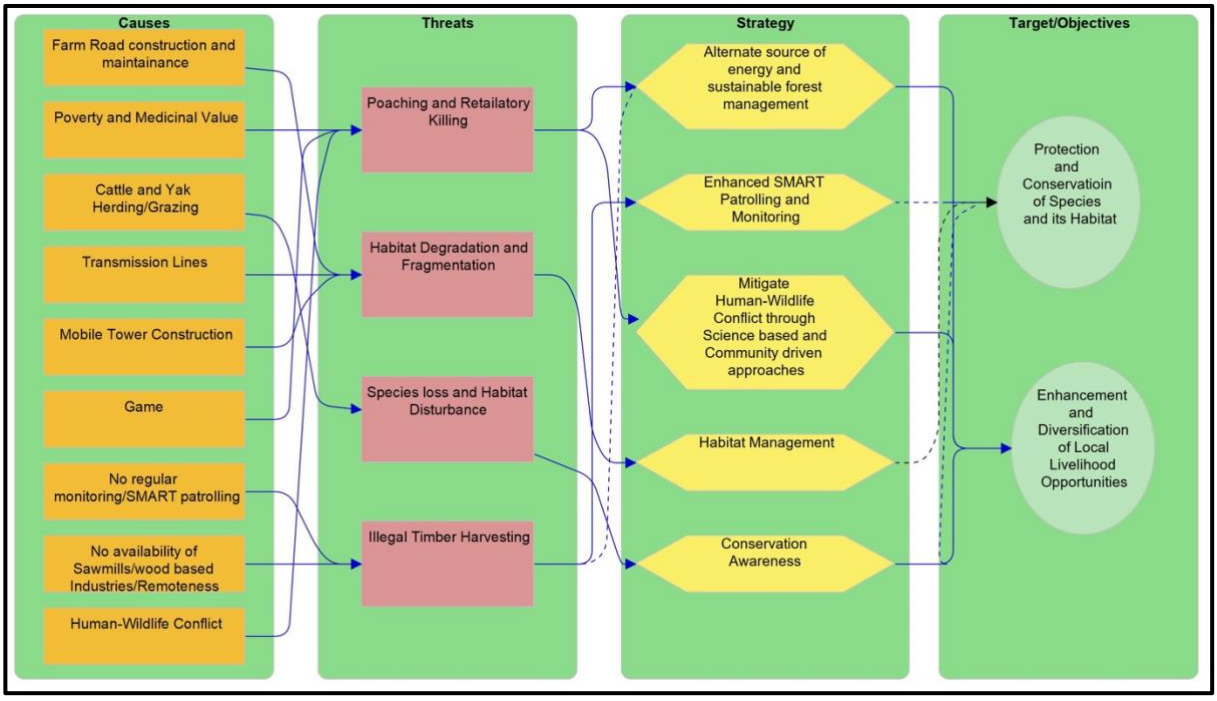

Figure 3: Conceptual Model for conservation of Namphula-Gaytala KBA (Miradi, n.d.)

2.3 Challenges

2.3.1 Livelihood and Traditional rights

The KBA area is inhabited since time immemorial for cattle and yaks herding. Although there is a decreasing trend of cattle herding and the number of cattle raised, still there are cattle and yak herders residing in the KBA area for pasture where they migrate seasonally and are given grazing rights to continue in their Tsamdro (pastureland) although the government has paid compensation, for those who still rear local cattle/yaks in their ancient Tsamdro.

2.3.2 Climate Change

The impacts of climate change are posing and will continue to pose severe negative impacts to the conservation of biodiversity conservation. The changing temperature and precipitation regimes and erratic weather patterns that are occurring will directly of indirectly be the drivers to the species distributions and migrations within the KBA and disional forest office boundaries.

2.3.3 Shortage of Financial Resources

There is a lack of sustained funding support in the areas outside the protected area for conservation although it has improved over recent years. Further, field division offices are mostly focused on public service delivery with limited conservation efforts.

2.3.4 Lack of smart green infrastructure

Infrastructure development is inevitable with the modernization and development of the nation. The construction of linear infrastructures such as farm roads and transmission lines and the construction of telecommunication towers is posing a major challenge to the conservation of the species and their habitat. The farm road constructions such as that of Getana gewog cuts across the narrow Namphula ridge blocking the migration of elephants. However, the need for smart green infrastructure in such unavoidable development is necessary and should be included in any developmental plans

Chapter 3: Interventions/Plans

3.1 Vision and Goal

Vision: A viable population of threatened species in coexistence with the people in the landscape outside Protected Area.

Goal: Maintain a viable population of Threatened species (Tiger, Asian elephant and Red Panda) conserved and its habitat maintained in Namphula-Gaytala KBA.

3.2 Objectives

3.2.1 Objective 1: Protection and Conservation of Species and it's Habitat

A secure habitat is vital for the survival of species to persist, and that certainly pertains to the Tiger, Asian Elephant, and Red Panda. With habitat degradation, illegal tree felling, poaching, and grazing/cattle herding as the major threats in the KBA area, resource mapping, illegal activity, and HWC conflict hotspot mapping, increased Monitoring and SMART patrolling and species monitoring using camera traps should be undertaken with relevant partners and local stakeholders.

3.2.2 Objective 2: Enhancement and Diversification of Local Livelihood Opportunities

The local communities play a vital role in the conservation and safeguarding of natural resources in the surrounding with the fact that they have been living in close harmony with nature for generations. Every conservation action needs to be implemented in consultation with local communities and by engagement in the activities throughout the different stages of action plan implementation with alternative livelihood options, awareness on conservation, and mitigation measures for the impacts on their livelihood.

Objective(s) and outputs.

Objectives	Strategies	Action	Year along with budget (in Nu.m)										Total	Remarks
			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10		
Objective 1: Protection and Conservation of species and its habitat.		*Action 1: Conduct Annual Camera trapping Excercise*	0.05	0.05	0.05	0.05	0.05	0.1	0.1	0.1	0.1	0.1	**0.75**	Annual Camera trapping in Namphula and Gaytala Area
	Strategy 1: Enhanced SMART Patrolling and Monitoring	*Action 2: Strengthen SMART Patrolling (Conduct Planned & Long Range Patrol)*	0.1	0.1	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	**0.75**	Conduct SMART patrolling aong Namphula-Gaytala Ridge
		Action 3:Resource assessment, Mapping and Allotment of Lesser known timber species for Rural House Building Timber and Commercial Constructions	0	0.5	0	0	0	0	0	0	0	0	**0.5**	Resource assessment and mapping along Namphula Ridge
	Strategy 2: Mitigate Human-Wildlife Conflict (HWC) through science based and Community driven approaches	Action 1: Initiate Quick Response Team(QRT)	0.4	0	0	0	4	0	0	0	0	0	**4.4**	Bongo and Getana Gewog
		Action 2: Implement mitigation measures like electric fencing.	0	0.8	0	0	0	0	0	0	0	0	**0.8**	Prioritized WHC hotspot areas/Villages
	Strategy 3: Habitat Management	Action 1: Enrichment Plantation	0	0.2	0	0	0	0.2	0	0.2	0	0	**0.6**	Namphula and Lachudoley areas
		Action 2: Water hole maintenance	0	0.2	0	0	0.2	0	0	0.2	0	0	**0.6**	Namphula(Lower elevations of KBA area)
		Action 3: Bioengineering along the major lansldies are of roadsie slopes	0	0.5	0	0	0	0.5	0	0	0	0	**1**	Along the Getana Gewog Road

Objectives	Strategies	Action	Year along with budget (in Nu.m)										Total	Remarks
			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10		
		Action 4: Artificial Connectivity/Passage/Corridor at Namphula	0	0.8	0	0	0	0.5	0	0	0	0.5	**1.8**	At the Namphula (Elephant migratory route)
Objective 2: Enhancement and Diversification of Local Livlihood Opportunities	Strategy 1: Alternate source of energy and sustainable forest management	Action 1:Supply of energy saving devices (Portable Solar Panels and Rechargeable torches)	0	0.8	0	0	0.8	0	0	0	0	0	**1.6**	Herders of Gedaphu, Ketokha, Gaytala, Phutsa and Tashigang Village
		Action 2:Rewview of Local forest management plan(Getana)	0	0	0.5	0	0	0	0	0	0	0.5	**1**	Getana Local Forest Management Plan
	Strategy 2: Conservation Awareness	Action 1: Placement of Signages along the Namphula Ridge	0.6	0	0	0	0	0	0	0	0	0	**0.6**	Along the Getana Gewog Road and at Namphula Ridge
		Action 2:Create awareness on Biodiversity Conservation, existing Forestry Acts and Rules.	0.2	0	0	0	0	0.2	0	0	0	0	**0.4**	Bongo and Getana Gewog(focused in Ketokha, Gedaphu, Phutsa, Toktogom and Tashingang Villages)
	Strategy 3: Mitigate Human-Wildlife Conflict through science based and Community driven approaches	Action 1: Experience sharing on HWC mitigation measures (Local measures)	0	0.1	0	0	0	0.1	0	0	0	0	**0.2**	Bongo and Getana Gewog(focused in Ketokha, Gedaphu, Phutsa, Toktogom and Tashingang Villages)
		Action 2: Awareness on HWC and Mtigation Measures	0.1	0	0	0.1	0	0	0.1	0	0	0.1	**0.4**	Getana and Bongo Gewog
	Mid-Term Review and Review at the 10th year of the Action Plan		0	0	0	0	0.2	0	0	0	0	0.3	**0.5**	Review plan by Division in consultation with Gewogs and NCD
Grand Total													**15.90**	

Table 1: Implementation and Budget Framework

Chapter 4: Monitoring and Evaluation

4.1 Monitoring and Evaluation

The Implementation of the Action plan will be monitored by the Nature Conservation Division (NCD) in collaboration with the DFO, Gedu. A mid-term review of the plan will be carried out towards the end of five years of plan implementation. Progress will be monitored from periodic reports submitted by the field offices and presented to the department. The monitoring framework (Table 2) will be used for monitoring and evaluation, using the indicators provided. The action plan will be a living document and the activities prescribed below shall be dynamic and should change as per the change of policy, and priorities of field situations. The annual monitoring and mid-term review should consider any additions or deletions of actions wherever necessary and relevant.

4.2 Funding & timeline

This conservation action plan is developed for a plan period of ten years from July 2023-June 2033. The development of plan is guided by the "Guidelines for classifying and Managing Key Biodiversity Areas in Bhutan 2020" and in line with the provisions of the Forest and Nature Conservation Act 1995. Over the next ten years, the DFO, Gedu, Department of Forest and Park Services (DoFPS) and the conservation partners will be implementing 18 key actions and will incur an estimated cost of **Nu. 15.90** million. The major portion of the funding will be from the Royal Government of Bhutan (RGoB), BFL, and the IKI project as per the plans and priorities. However, funding from other donors like WWF, BTFEC, UNDP, Bhutan Foundation, and other international donors will be sourced.

4.3 Implementation mechanism

The Divisional Forest Office, Gedu, (DoFPS) will be the lead agency in the implementation of the action plan technically supported by the Nature Conservation Division, DoFPS. The implementation of activities that require technical support for Human-Wildife Conflict management and assessment will be done in coordination with NCD (HWC section) and all the activities in the field will be implemented in collaboration with

Chukha Dzongkhag and Gewog Administration Office (Getana and Bongo Gewog).

Objectives	Strategies	Action	Output Indicator	Baseline Indicator	Unit	Yearly Target									
						Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Objective 1: Protection and Conservation of species and its habitat.		*Action 1: Conduct Annual Camera trapping Excercise*	*Camera trap Installed and Monitored*	*0*	*numbers*	1	1	1	1	1	1	1	1	1	1
	Strategy 1: Enhanced SMART Patrolling and Monitoring	*Action 2: Strengthen SMART Patrolling (Conduct Planned & Long Range Patrol)*	*SMART patrolling Conducted*	*1*	*numbers*	2	3	3	3	3	3	3	3	3	4
		Action 3:Resource assessment, Mapping and Allotment of Lesser known timber species for Rural House Building Timber and Commercial Constructions	*Resources assessed and mapped*	*0*	*Report*	0	1	0	0	0	0	0	0	0	0
	Strategy 2: Mitigate Human-Wildlife Conflict (HWC) through science based and Community driven approaches	Action 1: Initiate Quick Response Team(QRT)	Number of QRT formed	0	Report	1	0	0	0	1	0	0	0	0	0
		Action 2: Implement mitigation measures like electric fencing.	number of mitigation measures implemented	0	Report	0	1	0	0	0	0	0	0	0	0
	Strategy 3: Habitat Management	Action 1: Enrichment Plantation	Number of Enrichmnt Plantation	0	*numbers*	0	1	0	0	1	0	1	0	0	1
		Action 2: Water hole maintenance	Water holes maintained	0	*numbers*	0	1	0	0	1	0	0	1	0	0

Objectives	Strategies	Action	Output Indicator	Baseline Indicator	Unit	Yearly Target									
						Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
		Action 3: Bioengineering along the major lansldies are of roadsie slopes	Bioengineering along the roadside/landslides area	0	*numbers*	0	1	0	0	0	1	0	0	0	0
		Action 4: Artificial Connectivity/Passage/Corridor at Namphula	willife corridor/passges imporved	0	*numbers*	0	1	0	0	0	1	0	0	0	1
Objective 2: Enhancement and Diversification of Local Livlihood Opportunities	Strategy 1: Alternate source of energy and sustainable forest management	Action 1:Supply of energy saving devices (Portable Solar Panels and Rechargeable torches)	Supply of energy saving devices/alternative energy devices	0	nos. of households/herders	0	9	0	0	0	9	0	0	0	0
		Action 2:Rewview of Local forest management plan(Getana)	Forest management planned	0	number	0	1	0	0	0	0	0	0	0	1
	Strategy 2: Conservation Awareness	Action 1: Placement of Signages along the Namphula Ridge	Sinages installed	0	*numbers*	1	0	0	0	0	0	0	0	0	0
		Action 2:Create awareness on Biodiversity Conservation, existing Forestry Acts and Rules.	Awarness meetings conudcted	1	*numbers*	1	0	0	0	0	1	0	0	0	0
	Strategy 3: Mitigate Human-Wildlife Conflict through science based and Community driven approaches	Action 1: Experience sharing on HWC mitigation measures (Local measures)	Succes stories shared amongst villagers and Gewogs	0	*numbers*	0	1	0	0	0	1	0	0	0	0
		Action 2: Awareness on HWC and Mtigation Measures	Awareness on HWC conducted	0	*numbers*	1	0	0	0	1	0	0	1	0	1

Objectives	Strategies	Action	Output Indicator	Baseline Indicator	Unit	Yearly Target									
						Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
		Mid-Term Review and Review at the 10th year of the Action Plan	Action plan reviewed	0	*numbers*	0	0	0	0	1	0	0	0	0	1

Table 2: Monitoring Framework

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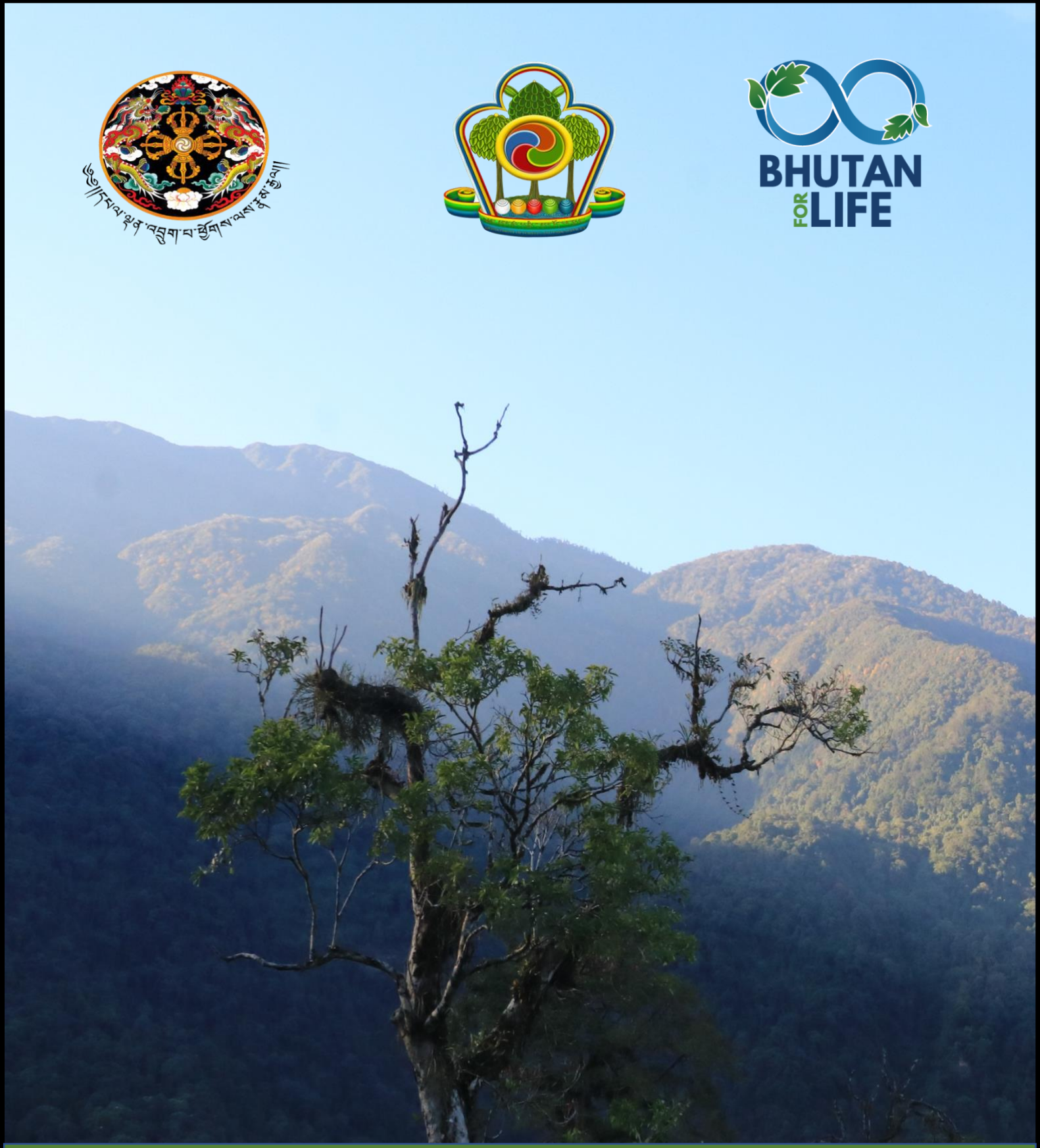

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