Khaling-Kharungla Key Biodiversity Area

Conservation Action Plan

"Haven for Tragopans"

(1st July 2023-30th June 2033)

Divisional Forest Office
Trashigang
Department of Forests and Park Services
Ministry of Energy and Natural Resources

Royal Government Endorsement and Approval

Khaling-Kharungla 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

Chief Forestry Officer
Divisional Forest Office, Trashigang.

Forwarded for Approval

Chief Forestry Officer
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Approved by

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1. Cover photo of Blyth's tragopan by Sonam Dorji, freelance travel guide
2. Tshering Dorji, Warmrong Range Office

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

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Chapter 1: Introduction

Background

According to IUCN, key biodiversity area (KBA) refers to the "sites contributing significantly to the global persistence of biodiversity". KBA in national context refers to the "sites outside protected area networks, contributing significantly to global and/or national persistence of biodiversity" (NCD, 2020).

Khaling Kharungla KBA is designated for protection and conservation of threatened Blyth's tragopan *Tragopan blythii* under B3c KBA classification criteria. B3c criteria refers to geographically restricted biodiversity that is a part of the globally most important 5% of occupied habitat for ≥5 species in the taxonomic group (NCD, 2020). Besides Larjab in Lauri gewog, Khaling Kharungla KBA is the only landscape where three species of tragopans are known to coexist.

Site description

The 14.36km^2 KBA is located on the ridge of Khaling Kharungla under Trashigang Divisional Forest Office. It spread across Khaling (12.24 km^2) and Lumang gewog (2.12km^2) within the elevation ranging from approximately 2045–3145m. The cool broadleaved and evergreen oak forest are the dominant forest types found inside KBA (DoFPS, 2022).

Currently, it is managed under multiple forest management regimes as depicted in the following table:

Sl.no	**Existing management regimes**	**Area (km^2)**
1	Drupkhang Choling CF	0.08
2	KK FMU Kharungla protection block	3.6
3	KK FMU Kurichillo production block	0.7
4	Sherubtse research block *	6.1
5	SRF without management regime	3.8

**Area allocated to Sherubtse College for their field exercise*

Some of the conservation significant species like Ward's trogon, Himalayan red panda, Satyr tragopan, Temminck's tragopan, six cat species (Clouded leopard, Common leopard, Asiatic golden cat, Marbled cat, Leopard cat and Jungle cat), Asiatic black bear, Dhole and other common ungulates are also found inside KBA.

Bhutan telecom tower, 3.8km stretch of Trashigang Samdrup Jongkhar highway, and ancient Womrongpa *zhunglam* trail are present inside the KBA.

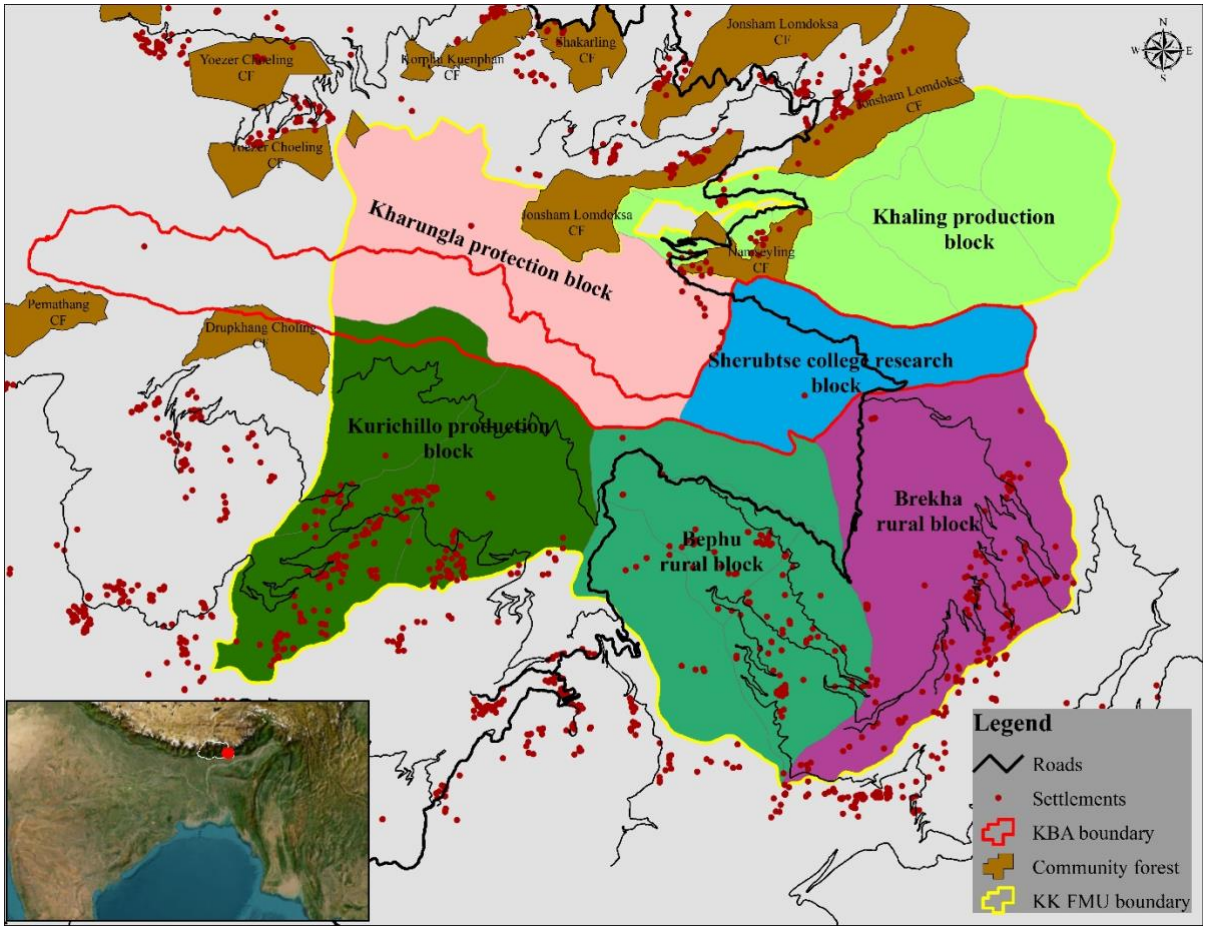
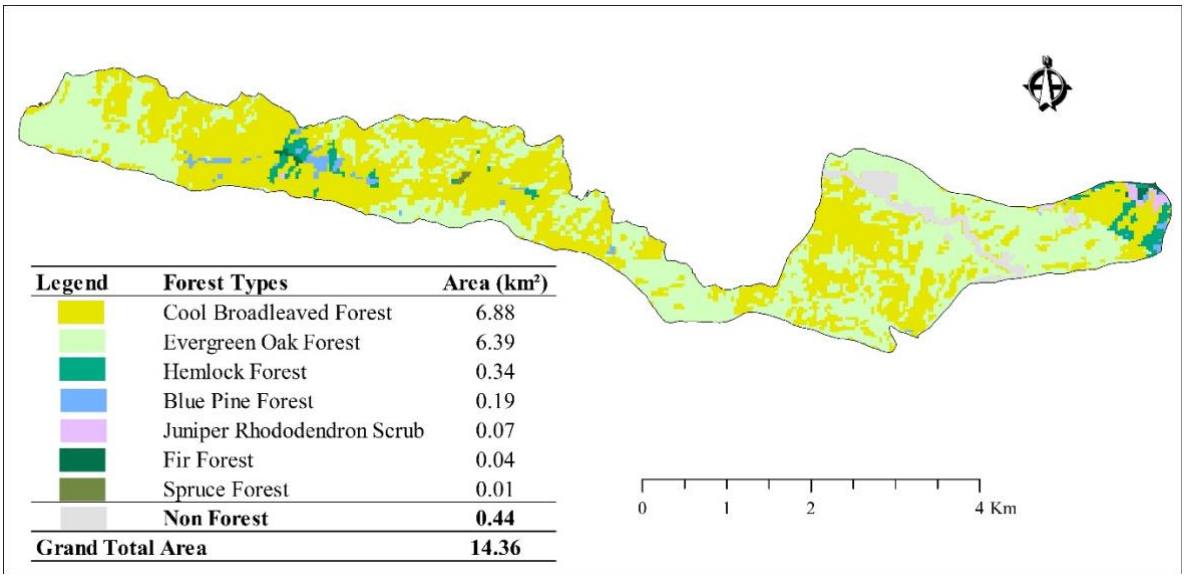


Figure 1 Map showing the location of Khaling Kharungla KBA along with existing management regimes



Legend	Forest Types	Area (km²)
	Cool Broadleaved Forest	6.88
	Evergreen Oak Forest	6.39
	Hemlock Forest	0.34
	Blue Pine Forest	0.19
	Juniper Rhododendron Scrub	0.07
	Fir Forest	0.04
	Spruce Forest	0.01
	Non Forest	**0.44**
Grand Total Area		**14.36**

Figure 2 Forest types inside KBA

Chapter 2: Threat and Challenges

Threats

Threats, its' contributing factors and strategies to address those threats inside Khaling Kharungla KBA is illustrated in the schematic framework (Figure no. 3).

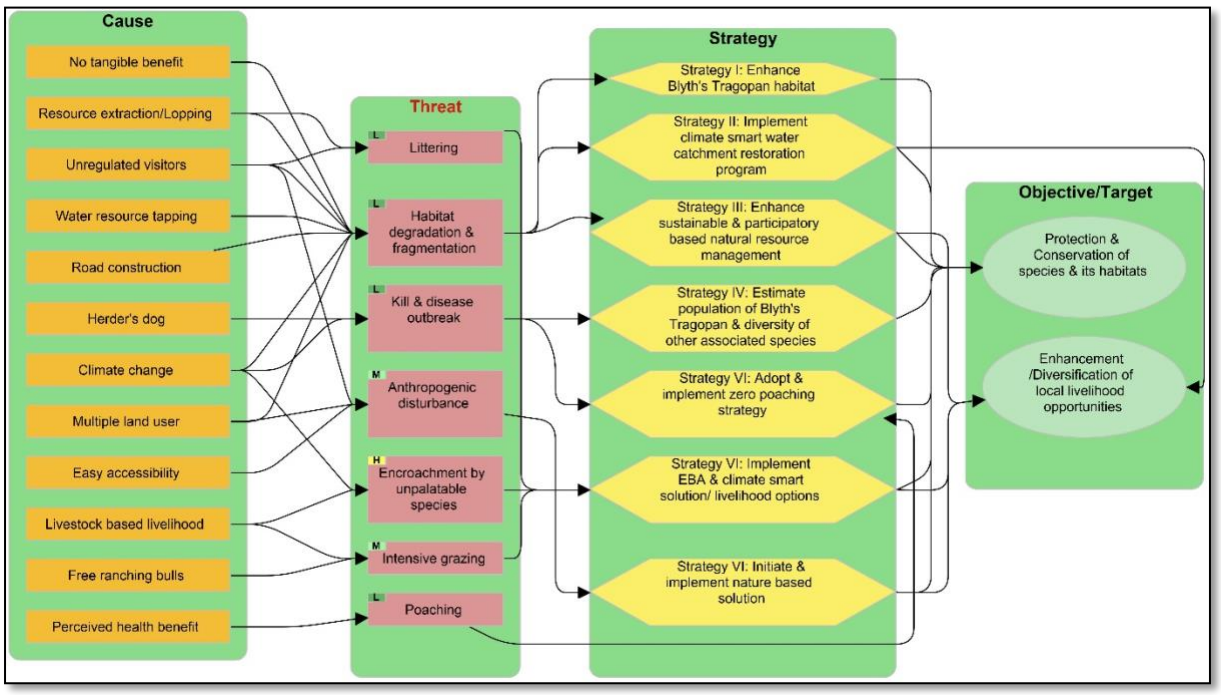
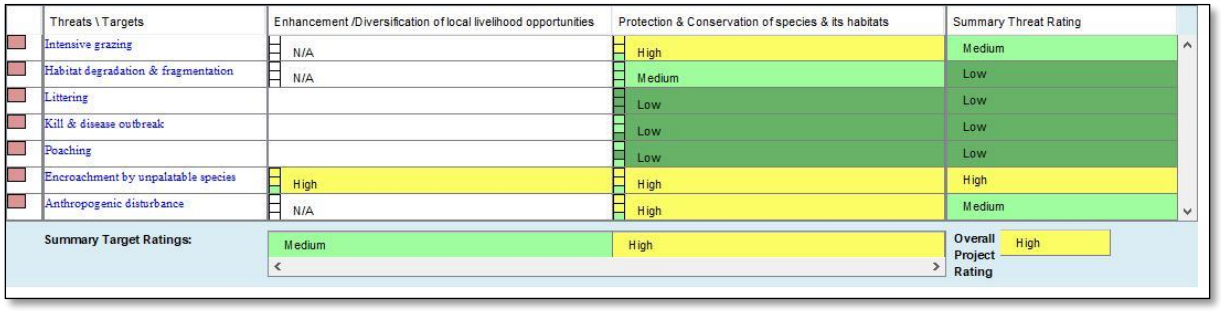


Figure 3 Schematic framework KBA management



Threats \ Targets	Enhancement /Diversification of local livelihood opportunities	Protection & Conservation of species & its habitats	Summary Threat Rating
Intensive grazing	N/A	High	Medium
Habitat degradation & fragmentation	N/A	Medium	Low
Littering		Low	Low
Kill & disease outbreak		Low	Low
Poaching		Low	Low
Encroachment by unpalatable species	High	High	High
Anthropogenic disturbance	N/A	High	Medium
Summary Target Ratings:	Medium	High	Overall Project Rating: High

Figure 4 Threat rating for Khaling Kharungla KBA

Overall threat rating for the landscape is "high" which indicates need for management intervention. Following activities are identified as threats inside KBA:

Intensive grazing

Khaling Kharungla landscape serve as winter grazing ground for the large livestock population owned by group of semi nomadic communities from Merak. Approximately 653 number of livestock is reported to graze inside KBA belonging to 11 households. Therefore, this

landscape experience intensive grazing and lopping which lead to habitat disturbances and degradation. In addition to Bropka's livestock, oxen from nearby gewogs also graze in the landscape during non-cultivation season.

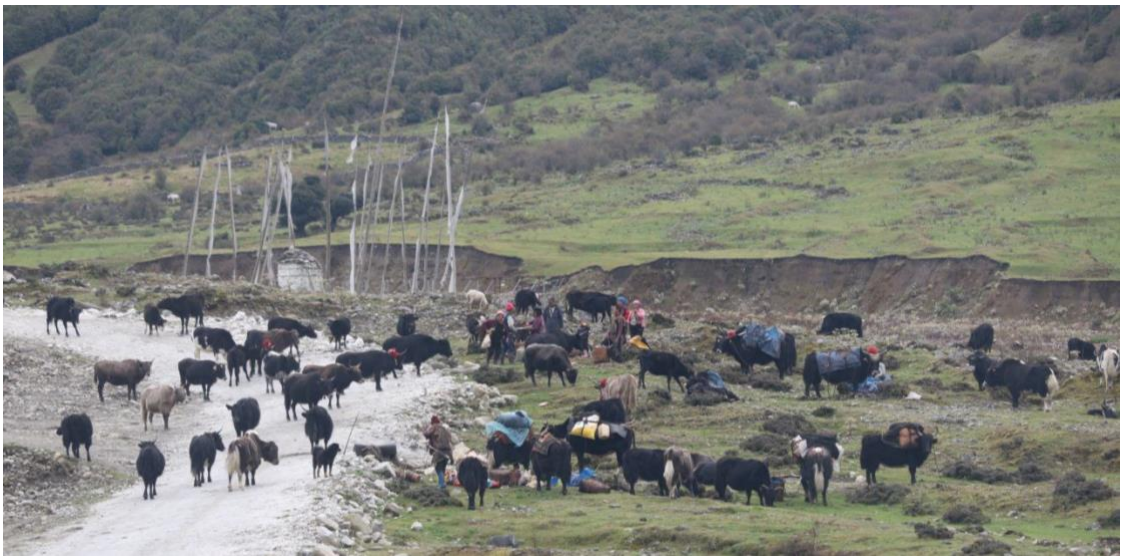


Figure 5 Livestock migrating to their winter grazing land at Khaling Kharungla

Habitat degradation and fragmentation

Approximately, 72.14% (10.36km^2) of the KBA area falls inside KKFMU of which 0.7km^2 is inside production block. Drinking water of the people under Lumang, Mukazor, and Wamrong town is also tapped from in and around the KBA landscape. Therefore, resource extraction, grazing, lopping and water resource tapping without proper management results in habitat degradation. Further, there is also a proposal to construct road to connect Dung Manmu under Lumang gewog to Jerri-Lemi under Kaling gewog via Kharungla ridge, which could potentially fragment the habitat.

Littering

Blyth's tragopan is one of the sought after bird species by the birders and photographer. Since the occurrence of the species was made public, annually several number of unregulated visitors were seen visiting the KBA to observe the species. Without proper facilities, they tend to litter the landscape with non-degradable waste eventually polluting the environment along the trail and random camping sites.

Kill and disease outbreak

Every herders own more than one guard dogs. Their dog always accompany them into the forest. Such practices increase the risk of zoonotic disease transmission and dog hunting tragopan and other associated species.

Poaching

Though there is no report of poaching from the landscape, photographs of the people with bow and arrow were retrieved from the camera traps. Similarly, evidences of herders hunting wild galliformes were also reported Sakteng Wildlife Sanctuary. Therefore, poaching was identified as one of the threats in KBA.

Figure 6 People with bow and arrows inside KBA

Encroachment by unpalatable species

Timber extraction from FMU has resulted in opening up of forest canopy making it favorable for the growth of unpalatable species. Similarly, livestock grazing grounds are also shrinking from the encroachment by unpalatable species that compels livestock and herders to explore new grazing grounds. This results to poor habitat for Blyth's tragopan that generally avoid dense bamboo undergrowth (Peng Cui, 2008) and grassy patches(Ghose et al., 2003). Therefore, encroachment by unpalatable species is identified as one of the threats.

Anthropogenic disturbances

Approximately, 3.8km of Trashigang Samdrup Jongkhar highway pass through KBA and there is a FMU forest road in the periphery. It makes KBA easily accessible to visitors. In recent year, several incidences of un-regulated birder and photographer exploring Blyth's habitat using prerecorded calls were also reported. Owing to the easy accessibility and rich bird diversity, the number of un-regulated visitor is likely to increase in coming years. These will cause disturbance to biodiversity inside KBA.

Challenges

Delicate social cohesion

Administratively, Khaling Kharungla KBA landscape falls under Lumang and Khaling gewog. Traditionally, few group of herders from Merak has been grazing their livestock in the winter season after paying the nominal charges. In recent times, number of herders in the landscape has increased with arrival of new herders leading to excessive utilization of natural resources without much benefit to the people two gewogs.

People of Khaling and Lumang gewog openly expresses their wish to get rid of herders from the landscape to minimize environmental degradation from grazing, trampling, girdling and lopping. Consequently, the social cohesion between the herders and communities of two gewogs is delicate that demands high-level policy intervention.

Since social cohesion is important driver of long-term prosperity and stability, delicate social cohesion in the landscape will create less sense of responsibility towards activities implemented in KBA.

Impact of climate change

Climate change is one of the utmost threats to biodiversity more prominent in fragile mountainous ecosystem. Effects of climate change in the form of extreme weather events and seasonal changes are expected to affect both habitats and ecology of the species. Those species that are unable to cope with changing climate will be force to extinction. However, mitigation of climate change and its impact to biodiversity is more challenging owing to complex nature of climate change and level of sacrifices it entails.

Lack of technical capacity, long-term climate monitoring stations and relevant equipment remains as a challenge in the monitoring impact of climate change to Khaling Kharungla KBA.

Unregulated birders and photographers

Blyth's tragopan and *Wards tragon* are among the most sought-after bird species by the birders and photographer. Since the occurrence of the species was made public and is easily assessable by road. Annually several numbers of unregulated visitors were seen visiting the KBA site to observe and photograph the species. Currently, landscape is not governed by conservation policies/documents like in protected areas; the management faces huge challenges in regulating the birders and photographers.

Chapter 3: Conservation Plan

Vision and Goal

Conservation of the species and their habitat in Khaling-Kharungla area.

Objective(s)

- To protect and conserve species and its habitats
- To enhance /diversify local livelihood opportunities

Restriction inside KBA

All anthropogenic activities that results in adverse impact to the KBA shall be restricted within the KBA in addition to the restricted provisions under the prevailing rules and regulations of the Department of Forest and Park Services.

Implementation Timeframe

There are 33 actions from Seven Strategies set to fulfill two Objectives for conservation of Blyth's tragopan in Khaling-Kharungla Key Biodiversity Areas (KKKBA). It will be valid for 10 years with effective from 1st July 2023-30th June 2033.

The financial estimates of Nu. 15.05 Million is proposed for the management of 14.36 km² K-K KBA for the conservation of Blyth's tragopan and other associated flora & fauna along with the enhancement of socio-economic status of local communities through implementation of climate smart nature based livelihood options.

The conservation operation plan for implementation of the conservation work plan will be prepared annually by the office of Warmrong Range and KKFMU. It will guide the effective implementation of the actions framed under each strategy.

The major source of funding for these activities is expected to be secured from Bhutan for Life (BFL) and Royal Government of Bhutan. The budget proposal and implementation will be implemented as per the Governments financial rules, regulation, norms and circulars following financial year of RGoB (July to June).

However, other sources of funding from other conservation donors like Bhutan Trust Fund for Environmental Conservation (BTFEC), WWF-Bhutan, and Royal Society for Protection of Nature (RSPN) will be explored.

Table 1 Implementation framework. Khaling- Kharungla KBA action plan will be implemented as per the this framework

Objectives	Strategies	Action	Year along with budget (in Nu.m)										Remarks
			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
Protection and Conservation of Species and its Habitats	*Strategy 1: Enhance Blyth's Tragopan habitat*	*Action 1.1. Improve degraded waterhole, snag and saltlicks*	0.05	0.05	0.05	0.05	0.05						Management of natural waterhole
		Action 1.2. Carry out tragopan habitat improvement activities through removal of unwanted species		0.05	0.05	0.05	0.05						Bamboo, Rhododendron in Protected and Production Block
		Action 1.3. Carry out enrichment plantation with native palatable & fruit tree			0.10	0.10			0.10	0.10			Habitat enrichment works/fruits and berries
	Strategy 2: Implement Climate SMART water Catchment restoration Program	*Action 2.1. Classify and map spring shed employing hydrogeological aspect*	0.08										Entire KBA site and nearby Gewog
		Action 2.2. Implement physical measures for drying water sources		0.20					0.10				Required locations in and around KBA
		Action 2.3. Install Data Logger for long term climate monitoring	0.20										Data Logger to installs at Karungla top
		Action 2.4. Periodic monitoring of weather data logger		0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	Annual retrieval of data from Data Loggers
	Strategy 3: Enhance Sustainable & Participatory Resources management	*Action 3.1. Support Annual KKFMU Operation plan preparation*	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	Annual OP plan preparation for KKFMU, cable line survey and other regeneration survey
		Action 3.2. Create LFMP preparation for Lumang Gewog		0.30									To prescribe ACC from other non-forestry management regime of Khaling Gewog
		Action 3.3. Create LFMP preparation for Khaling Gewog				0.30							To prescribe ACC from other non forestry management regime of Lumang Gewog
		Action 3.4. Revise LFMP for Thrimshing Gewog									0.20		To revise LFMP for Thrimshing Goeg, which expires on 2030
		Action 3.6. Revise community forest management plan		0.06	0.06	0.06	0.12		0.12		0.12	0.12	Dori, Shachari, Drupkhang,Khosphu-Phendey,Wakhar,Jeri,Joensham,Namseyling & Yoecholing

		Action 3.7. Conducts CFMG records and Book keeping		0.05	0.05	0.05	0.05	0.10	0.10	0.05	0.05	0.05	12 CF under Khaling and Lumang Gewog
		Action 3.8. Carryout grazing land improvement activities through removal of unpalatable species, and restoration of degraded grazing land			0.30	0.30			0.20	0.20			11 herders/household inside KBA site (Benefiting 35 people)s
		Action 3.9. Conducts CFMG members exposure tour or trip		0.50					0.50				CFMG executive and LG members from Khaling and Lumang
	Strategy 4:Estimate Population of Blyth's tragopan & Diversity of other associated species	*Action 4.1. Carry out Survey on Population status for Blyth's tragopan*	0.50								0.20		To conducts population count studies on Bylth;s tragopan inside KBA and in periphery of KBA, such as Dangling trail
		Action 4.2. Carryout detail study on ecology (life cycle) of the Blyth's tragopan		0.30	0.30								To conducts detail study on ecology of Birds(life cycle and Habitat preferences) in KBA site
		Action 4.3. Carry out annual monitoring of birds diversity	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	Supplement annual monitoring of Birds in BMG
		Action 4.4. Carry out annual camera trap exercise to monitor mammal species diversity	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	Study mammal and Guliforms in side KBA
		Action 4.5. Carry out detail assessment of Tragopan habitat	0.15								0.15		Study vegetation analysis of Study
	Strategy 5:Adopt & Implement Zero Poaching Strategy	*Action 5.1.Conducts SMART Patrolling/ anti-poaching activities*	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
		Action 5.2. Conducts conservation Awareness to community and stakeholders	0.05		0.05		0.05		0.05		0.05		Awareness on General conservation and KBA
		Action 5.3. Sensitize and monitor dog population of herders residing in and around KBA	0.04					0.04					Inside KBA and Nearby areas, total 40 Herders with 118 population, 2284 cattle population
Enhancement /Diversification of local livelihood opportunities	*Strategy 6: Implement EBA & Climate SMART*	*Action 6.1. Support to Smart Agriculture program of Department of Agriculture*		0.15		0.15							Household level seed support like mushroom for Khaling and Lumang
		Action 6.2. Support to Livestock intensification program			0.20		0.20						Khaling and Lumang Gewog as per Livestock plan

	Solution/Livelihood Option	*Action 6.3. Support farm mechanization to reduce the draught animal population*			0.30		0.30						Support power tiller (small) to communities of Khaling and Lumang Gewog
	Strategy 7:Initiatiate and Implement Nature Based solution	*Action 7.1. Design and develop birding based ecotourism products(Birding trail)-Warmrongpa Zhung lam*		1.50	1.50								Along Wamrong to Khaling old trail, birding eco trail, about 15km
		Action 7.2. Initiate community base biodiversity conservation program (citizen science/local Guide)		0.10					0.10				Identify and train local guide from Luamng and Khaling
		Action 7.3. Initiate Homestay and village lodge			0.10	0.50							One each in Khaling and Lumang
		Action 7.4. Conducts Monitoring & Evaluation	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	Quarterly and annual monitoring
		Action 7.5. Conducts Mid-term Review of Conservation Plan						0.10					Review of CP
		Action 7.6. Conducts Revision of Action Plan										0.10	Revision of CP
		Action 7.7. Installation of Signage and information boards in strategic location		0.10					0.10				Sign Boards along road and Boundary description
		TOTAL	**1.27**	**3.58**	**3.28**	**1.78**	**1.04**	**0.46**	**1.59**	**0.57**	**0.99**	**0.49**	**15.05**

Chapter 4: Monitoring and Evaluation

Warmrong Range office and Khaling-Kharungla Forest Management Units (KKFMU) will conduct daily monitoring on the progress of planned activities as per the agreed Annual Work Plan. This will be aimed to determine if the outputs, deliveries, and schedules planned have been achieved, so that action can be taken to correct the deficiencies as quickly as possible.

The Quarterly monitoring will be done by Divisional Forest Office, Trashigang continuously and throughout the implementation phase.

The external assessment will be coordinated by NCD in collaboration with relevant Office(s) to ensure that the results from the internal assessment is unbiased.

The Monitoring and Evaluation framework will guide overall monitoring and evaluation of the KBA action plan.

Table 2 Monitoring framework for Khaling-Kharungla KBA

Objectives	Action	Output indicator	Baseline	Unit	Yearly target									
					Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Protection and Conservation of Species and its Habitats	*Action 1.1. Improve degraded waterhole, snag and saltlicks*	*Waterhole restored*	0	*Nos*	2	2	2	2	2					
	Action 1.2. Carry out tragopan habitat improvement activities through removal of unwanted species	*Grass land managed*	0	*Ha*		5	5	5	5					
	Action 1.3. Carry out enrichment plantation with native palatable & fruit tree	*Fruit tree planted*	0	*Ha*			5	5			5	5		
	Action 2.1. Classify and map spring shed employing hydrogeological aspect	*Report*	0	*Nos*	1									
	Action 2.2. Implement physical measures for drying water sources	*Physical measure implemented*	0	*Nos*		10					10			
	Action 2.3. Install Data Logger for long term climate monitoring	*Data loggers installed*	0	*Nos*	1									
	Action 2.4. Periodic monitoring of weather data logger	*Annual monitoring report*	0	*Nos*		1	1	1	1	1	1	1	1	1
	Action 3.1. Support Annual KKFMU Operation plan preparation	*OP for KKFMU prepared*	0	*Nos*	1	1	1	1	1	1	1	1	1	1
	Action 3.2. Create LFMP preparation for Lumang Gewog	*LFMP plan prepared*	0	*Nos*		1								
	Action 3.3. Create LFMP preparation for Khaling Gewog	*LFMP plan prepared*	0	*Nos*				1						
	Action 3.4. Revise LFMP for Thrimshing Gewog	*LFMP plan revised*	1	*Nos*									1	
	Action 3.6. Revise community forest management plan	*CF plan revised*	12	*Nos*		1	1	1	2		1		2	2
	Action 3.7. Conducts CFMG records and Book keeping	*Training conducted*	0	*Nos*		1	1	1	1	2	2	1	1	1

Action 3.8. Carryout grazing land improvement activities through removal of unpalatable species, and restoration of degraded grazing land	Grazing land restored	0	*Ha*			5	5			3	3		
Action 3.9. Conducts CFMG members exposure tour or trip	Study tour conducted	0	Nos		1					1			
Action 4.1. Carry out Survey on Population status for Blyth's tragopan	Report on population status	0	Nos	1								1	
Action 4.2. Carryout detail study on ecology (life cycle) of the Blyth's tragopan	Report	0	Nos		1	1							
Action 4.3. Carry out annual monitoring of birds diversity	Report	0	Nos	1	1	1	1	1	1	1	1	1	1
Action 4.4. Carry out annual camera trap exercise to monitor mammal species diversity	Report	0	Nos	1	1	1	1	1	1	1	1	1	1
Action 4.5. Carry out detail assessment of Tragopan habitat	Report	0	Nos	1								1	
Action 5.1.Conducts SMART Patrolling/ anti-poaching activities	Report	0	Times	2	2	2	2	2	2	2	2	2	2
Action 5.2. Conducts conservation Awareness to community and stakeholders	Villages	0	Nos	2		2		2		2		2	
Action 5.3. Sensitize and monitor dog population of herders residing in and around KBA	Report	0	Nos	1					1				

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