Waklaytar-Balwani Key Biodeversity Area
Conservation Action Plan
July 2023- June 2033

Divisional Forest Office,Tsirang
Department of Forest and Park services
Ministry of Energy and Natural Resources

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Ministry of Energy and Natural Resources
Department of Forests and Park Services

Royal Government Endorsement and Approval

Waklayatar - Balwaney 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
Tsirang Forest Division.

Forwarded for Approval

Chief Forestry Officer
Nature Conservation Division

Approved by

DIRECTOR
Department of Forests and Park Services

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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

List of acronyms

BFL	Bhutan for Life
DoFPs.	Department of Forest and Park servcies
IUCN	International union for Conservation of Nature
KBA.	Key biodiversity area
KM2.	Square kilometer
Masl.	Meter above sea level
NCD.	Nature conservation Division
NWFPs	Non wood forest product
Ha.	Hectares
GLOFs.	Glaciers Lake outburst floods

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Chapter 1

Introduction.

The Key Biodiversity Area (KBA) as defined by the IUCN as “sites contributing significantly to the global persistence of biodiversity”. In the context of Bhutan, the word ‘global’ in this definition may be replaced with ‘national’ when deemed necessary, and “sites” will refer to “areas outside protected areas”. As such, KBA are “sites outside protected area (PA) networks, contributing significantly to the global and/or national persistence of biodiversity”. For Bhutan, classifying KBAs will be prioritized for landscapes outside the PA. This is because the PA have a primary conservation objective with their core function promoting the in-situ conservation of biodiversity, amongst others, with strong legal support. On the other hand, state reserved forests (SRF) outside PA, though expected to have biodiversity and ecosystems of great conservation significance, faces higher degree of anthropogenic threats and have greater risk of losing the species.

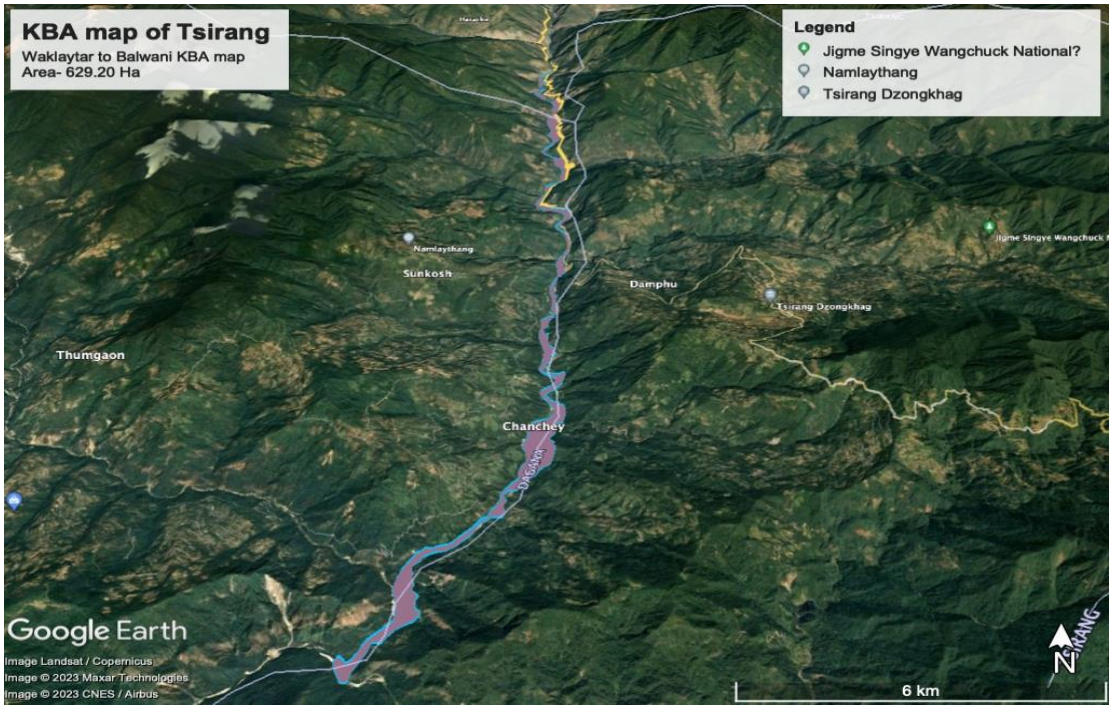
The Waklaytar-Balwani KBA is one of the most suitable and prime Habitat for White-bellied Heron (WBH). The WBH is categorized as a critically endangered under the IUCN Red List of threatened species. The Heron is found to feed on fish species in this freshwater river ecosystem of Sunkosh/Punatsangchu river and its tributaries. During the population survey of WBH 2022, the highest count of WBH in the wild were recorded from Wakleytar bridge to Balwani zone. A total count of seven individuals including two breeding pairs were recorded in the area and out of 3 total active nest sites, 2 are found in this KBA (RSPN, 2022). Knowing its distribution and preferred feeding site indicates that the area is most preferable habitat for WBH. In this regard, conservation of WBH and its habitat management is necessary as they are indicator of our freshwater ecosystem.

The KBA site identified stretches from Waklaytar in the North to Balwani in the South encompassing of Rilangthang WBH nesting site, Balwani WBH nesting site, multiple roosting and feeding sites of WBH along this river stretches. This stretch of river also forms as prime habitat of golden Mahseer. The boundary was delineated by surveying and demarcating important features such as national highway, private land, houses, institutional structures and important resource extraction sites on the ground among other parameters. Wherever feasible, 300 meters distance from the river was included in KBA area while delineating KBA boundary. Some of these features serve as permanent boundary features of the KBA.

Waklaytar-Balwani Key Biodiversity Area site is located 20km drive from Damphu, Tsirang District Headquarter. This KBA shares its boundary with Dagana Dzongkag jurisdiction as the other side of the river stretch falls under Dagana. This KBA runs through six Geogs of Tsirang viz. Sergithang, Tsirangtoe, Tsholingkhar, Rangthaling, Mendrelgang and Barsgong Geogs. The area is rich in biodiversity and prime habitat for WBH, Golden Mahseer and many threatened riverine species.

The KBA has an area of 6.22 Sq. km covering from the Waklaytar bridge to Kalikhola confluence (Balwani) ranging altitude from 250 m.a.s.l to 580 m.a.s.l. This KBA site meets both the criteria of Administrative Criterion for KBA management and Scientific Criterion set in KBA Standards of the IUCN. This KBA falls under A1a Threatened Species and B1 Individual geographically restricted species of the scientific criterion set in KBA standards of IUCN. This KBA meets all the Administrative Criterion for KBA Management.

The vegetation composition of this KBA is subtropical forest which comprise of warm broadleaf and Chirpine forest. Within the KBA, the floral assessment has carried out and found that there are about 20 different types of tree species. Some of the dominant tree species found are *Duabanga grandiflora, Terminalia myriocarpa, Callicarpa arborea, Bridelia retusa, Sterculia villosa, Schima wallichii, Pinus roxburghii, Lagerstroemia spp,Kallikarpa arborea, Ficus semicordata,Albizia species and bamboo spp(Dendroclamus and Bambusa).*



Chapter 2

Threat and Challenges.

Due to emerging threats from natural and anthropogenic activities, there are serious risks of losing the ground of conservation effort for WBH. The major threats to WBH conservation in KBA site are identified below through systematic study of threat ranking.

2.1 Habitat Destruction

Habitat destruction is one of the threats to White Bellied Heron conservation. It usually occurs when human activities such as agriculture farming, NWFPs collection, firewood and drift wood collection, sand and stone extraction causes destruction to WBH habitat. The main feeding habitat for WBH is freshwater river system and they are very sensitive to human disturbance (Bird Life International, 2021). The illegal resource extraction by local communities who resides adjoining to the KBA site possess threat and lead to gradual destruction of habitat mainly roosting, feeding and nesting sites.

2.2 Fishing

WBH is piscivorous in nature and plays a significant role in the river ecosystem (RSPN,2021). The survival of the WBH depends on the viable population of fish in its habitat. Fishing increases resources competition with WBH. WBH depend mainly on different sizes of fish based on its age and its persistence is threatened by fishing. KBA have diverse perennial tributaries such as Neychu, Burichu, Changchey chu, Rateykhola and Kalikholachu that flows through the KBA site. Due to this abundant river ecosystem, fishing using electrocution, poisoning and other fishing gears are becoming very rampant in these rivers. For Rateykhola alone, five fishing traps were encountered during our KBA field survey in the year 2022.

Fig 1: Fishing trap at Rateykhola

Fig 2: Battery used for electrocution

2.3 Transmission line

Freshwater ecosystem is the prime habitat for WBH conservation. According to Acharja, (2020), WBH occupies bigger rivers during dry seasons and winter & moves to small tributaries when they get swollen and turbid. The Hydropower development in large rivers, the prime habitat for WBH gets modified and degraded due to damming, power/transmission line and hydropower infrastructures. High tension transmission line and rural electrification built across rivers also pose threats to the movement of WBH that leads collision with wire and cause electrocution.

Fig 3: Electrocution of WBH (source RSPN website)

2.4 Human wildlife conflict

The main causes of the Human Wildlife Conflict are habitat loss and fragmentation and crop damage. As the global human population continues with developmental activities resulting in habitat loss and fragmentation it pushes wildlife out of their natural habitats conflicts are bound to happen. In some cases, people who suffer crop loss to wildlife implicate their livelihood and household food security. Some farmers lose their entire crops overnight from wildlife raids which generate resentment among local communities towards wildlife conservation.

As retaliation measures, people set traps and other measures in WBH nesting, feeding and roosting sites to prevent wild animal raiding crops and this will have negative impact on the survival of WBH. The conservation of WBH habitat requires effective HWC mitigation to conserve White Bellied Heron.

2.5 Grazing

Livestock farming is one of the key livelihood incomes of the people living nearby the KBA sites. The consultation meeting with communities during the KBA field assessment found that

most of the household residing nearby KBA area rears the cattle. As WBH being shy and solidary bird, grazing is also one of the threats to conservation of WBH causing disturbance by herders to WBH, mostly in roosting and feeding sites.

2.6 GLOFs

Due to climate change GLOFs is considered as one of the most important threats to freshwater biodiversity as rivers fed with glaciers and glaciers lake are more sensitive to climate change. With increase in temperature, these glaciers are retreating at faster rate causing flooding in downstream. The glaciers lake outburst floods cause turbidity and pose threat to fish population and food scarcity to WBH. The floods caused by GLOFs also lead river changing courses and at time destroying shallow feeding sites.

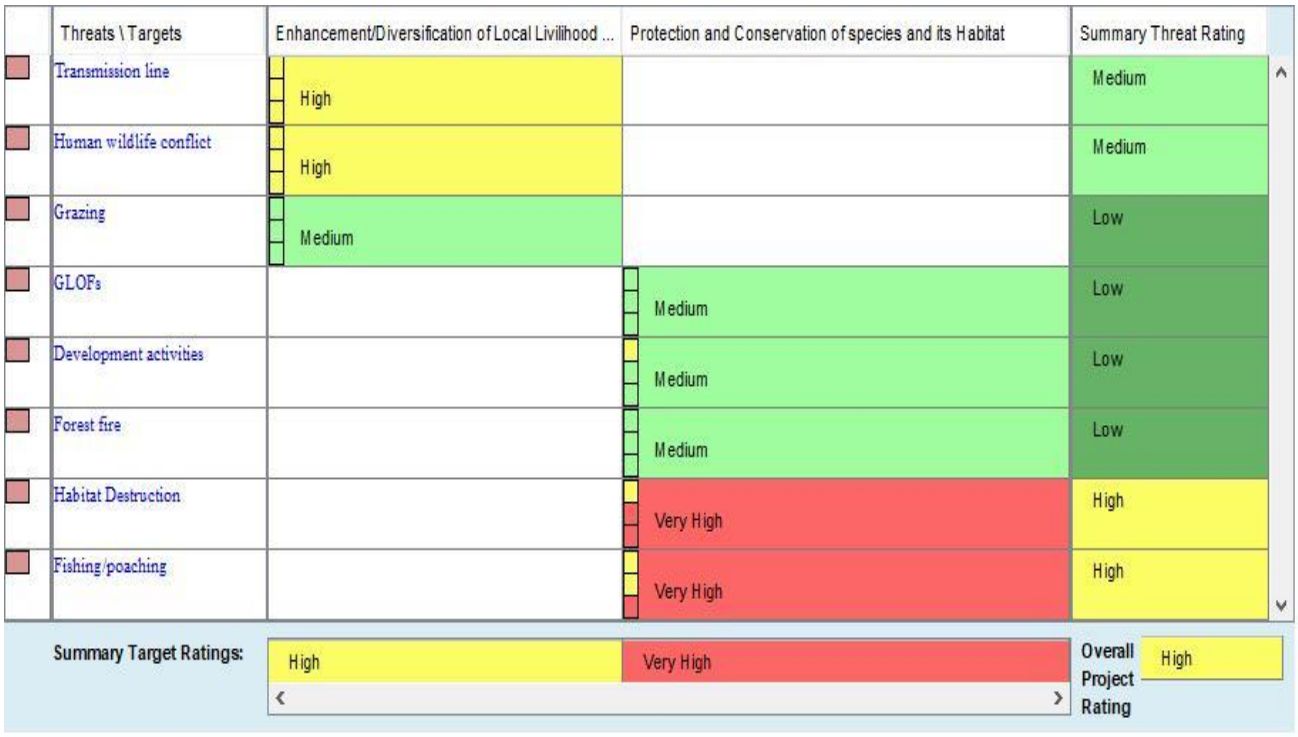
2.7 Development activities

As the population increases, the development of new infrastructure facilities also increases closer to the WBH habitat. The infrastructure development in the WBH habitat poses threat and disturbances to WBH. The development activities with change landscape as a result of national high way, access road, vehicular traffic, market shed, check post, crushing plants etc causes disturbances and threat to WBH. The presence of road access to river side also increases the threats as people wash cars that degrade the water quality and affect the freshwater river ecosystem (Rai et al., 2020).

2.8. Forest Fire

Forest fire is one of the threat identified during the public consultation meeting and KBA area delineation. The KBA covers five geogs and two geogs namely Tsirangtoe and Sergithang are categorized as fire risk areas due to chirpine forest and dry zone. Forest fire can have severe effect on the nesting trees and WBH can shift their habitat permanently due to threat. In 2019, forest fire above Waklaytar has destroyed substantial Acres of Chirpine forest which is within 1 km distance of nesting site.

2.9 Threat Ranking



Threats \ Targets	Enhancement/Diversification of Local Livilihood ...	Protection and Conservation of species and its Habitat	Summary Threat Rating
Transmission line	High		Medium
Human wildlife conflict	High		Medium
Grazing	Medium		Low
GLOFs		Medium	Low
Development activities		Medium	Low
Forest fire		Medium	Low
Habitat Destruction		Very High	High
Fishing/poaching		Very High	High
Summary Target Ratings:	High	Very High	**Overall Project Rating** High

Chapter 3

Interventions/Plans.

Vision and Goal

Ensuring the protection and conservation of White Bellied Heron and its habitat outside protected area.

Objective(s) and outputs.

- ✓ *Protection & conservation of species & its habitat*
- ✓ *Enhancement/ diversification of local livelihood opportunities*

Objectives	Strategies	Action	Year along with budget (in Nu.m)											Remarks
			Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	**Sub Total**	
Objective 1. Protection and conservation of species and its habitat	*Strategy 1: SMAT Patrolling and monitoring*	*Action1.1: Conduct smart patrolling regularly*	*0.486*	*0.486*	*0.486*	*0.486*	*0.486*	*0.486*	*0.486*	*0.486*	*0.486*	*0.486*	***4.86***	*Work charge for staffs engaged smart patrolling the KBA site*
		Action 1.2: Provide field gears/equipments for smart patrolling	*0.500*				*0.500*			*0.500*			***1.500***	*Purchase of field gears*

Objectives	Strategies	Action	Year along with budget (in Nu.m)											Remarks
	Strategy 2: Research and awareness	*Action 1:Create awareness on importance of WBH conservationat at community and institution level*	*0.35*		*0.35*		*0.35*		*0.35*		*0.35*		***1.75***	*DSA and working lunch for participants*
		Action 2: Conduct regular population, nest and habitat monitoring and data gathering	*0.060*	*0.060*	*0.060*	*0.060*	*0.060*	*0.060*	*0.060*	*0.060*	*0.060*	*0.060*	***0.600***	*Workcharge for Staffs engaged in population survey*
		Action 3:Provide necessary equipments to monitor and gather data to staffs engaged	*0.69*										***0.69***	*Purchase of binoculars and camera for monitoring and distribute to 3 Ranges (Tsirangtoe, Mnedrelgang and Tsirang) and Div HQ*
		Action 4: Conduct stakeholder capacity building workshop to monitor and encourage birdwatching,	*0.15*			*0.15*				*0.15*			***0.45***	*Training DSA and working lunch. (LG, schools of 3 geogs)*

Objectives	Strategies	Action	Year along with budget (in Nu.m)											Remarks
		photography ethics.												
	Strategy 3:Habitat Restoration Plantation	*Action 3.1: Plantation of trees within community forest*		*0.450*	*0.450*	*0.450*	*0.450*	*0.450*	*0.450*	*0.450*	*0.450*	*0.450*	***4.050***	*Provide fencing material, seedlings and work charge of technical staffs and 7 CFs of Barshong,Mendrelgang,Rangthaling and Sergithang geogs.*
		Action 3.2:Support CFMG with nursery development	*0.200*										***0.200***	*Provide Nursery establishment cost to Chunnyikhang and Sunkosh CFs.*
		Action 3.3:Carryout habitat restoration plantation in key degraded habitats		*0.150*		*0.150*			*0.150*				***0.45***	*Create plantation of 3 hactres in SRF land(Balwani, Barshong maed and Relangthang*

Objectives	Strategies	Action	Year along with budget (in Nu.m)											Remarks
		Action3.4: Maintenance of plantation			*0.030*	*0.030*	*0.060*	*0.090*	*0.120*	*0.150*	*0.180*	*0.210*	***0.870***	*Maintenance of 3 ha plantation with weeding, cleaning and casualty replacement*
Objective 2. Enhancement/Diversification of Local Livelihood opportunities	*Strategy 4:Support Rural Liveihood options*	*Action 4.1:Support and supply fingerlings as part of alternative livelihood*	*0.100*	*0.100*	*0.100*								***0.300***	*Supply matrerials and fingerlings to selected farmers(Basrhong maed and Relangthang)*
		Action 4.2:Crop compensation scheme to compensate loss of crops and livestock		*0.250*				*0.250*					***0.5***	*Provide workcahrge, working Lunch and Seed money for plan preparation of crop compensation scheme (Barshong maed and Relangthang)*
		Action 4.3:Support planting fruits trees and grass to nearby communities	*0.355*	*0.355*	*0.355*								***1.065***	*Supply fruit tree seedlings to 142 H/Hs with fruit trees(Brashong,mendrelgang, Rangthaling*

Objectives	Strategies	Action	Year along with budget (in Nu.m)											**Remarks**
														and sergithang)
		Total	***2.881***	***1.841***	***1.791***	***1.286***	***1.336***	***1.736***	***1.486***	***1.136***	***1.336***	***0.986***	***17.28***	

Fig : Implementation framework

Chapter 4

Monitoring and Evaluation

4.1. Monitoring and Evaluation

The plan activities monitoring will be done by the Division office, Tsirang in collaboration with NCD. Progress will be monitored by Division office based on the annual report submitted by be field Ranges and the compiled report will be to NCD. Mid-term plan review will be carried out towards end of five year plan period. The M&E table will be used for monitoring and evaluation using indicators provided.

4.2 Funding & timeline

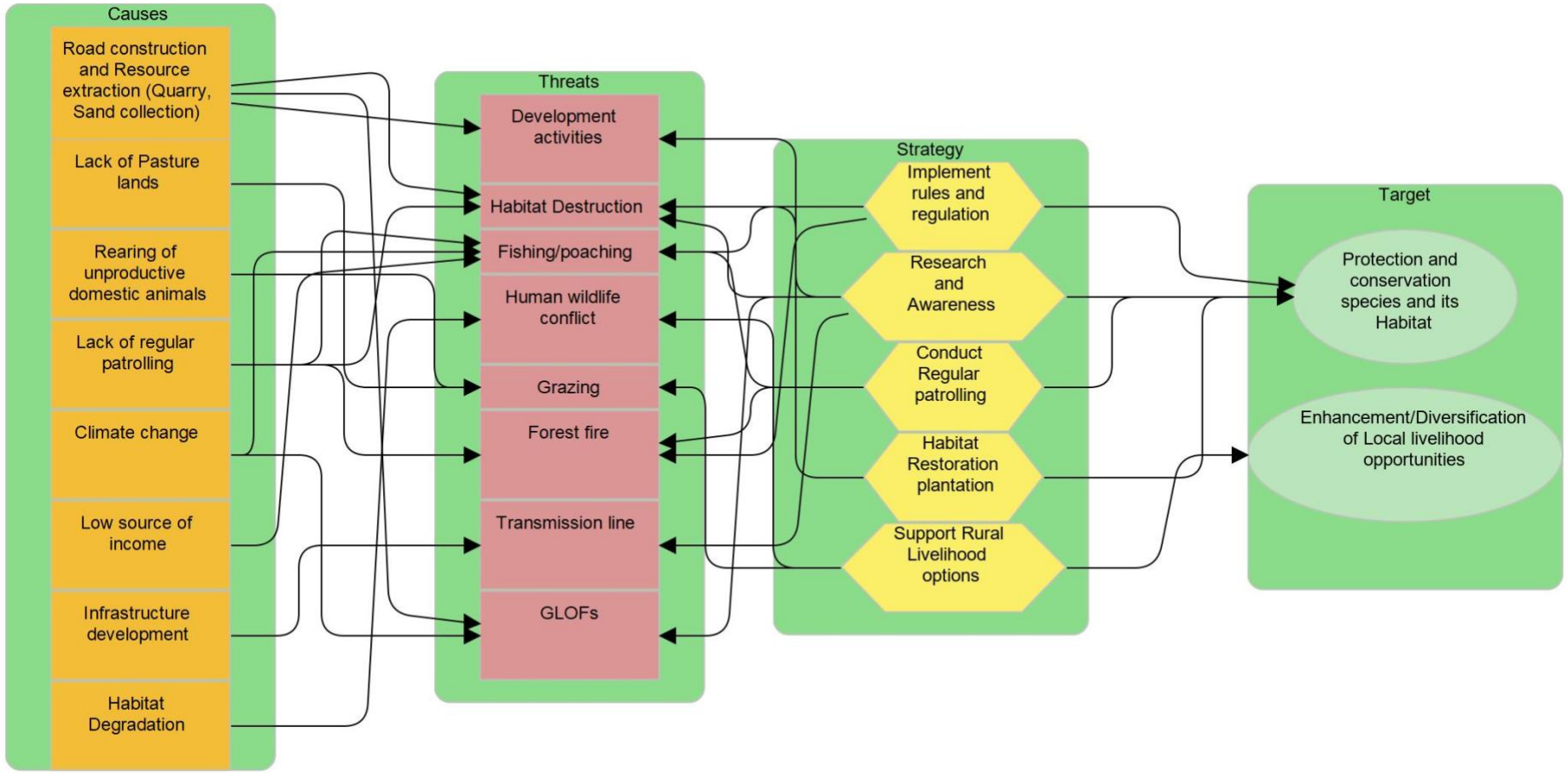
This KBA action plan is developed for a plan period of ten years from 1st July 2023-June 2033. The development of the plan is guided by the National Forest Policy 2011 and the 12th Five Year Plan of the Ministry of Agriculture and Forests. The action plan is also guided by the Bhutan for Life conservation milestones that will extend until 2032.Over the next ten years, the Division Forest office and the stakeholders will implement 13 key actions and will incur an estimated cost of Nu. 15.815 million.

The major portion of funding for this ten-year conservation action plan will be from NCD/BFL as most of the activities are aligned with 12 FYP and BFL plan. However, funding from other donors like WWF, BTFEC, IKI, GEF UNDP, Tarayana foundation and other international donors will be sourced.

4.3 Implementation timeline

The Tsirang forest Division will be the lead agency for the implementation of this conservation action plan with technical support of Nature Conservation Division of the Department and in collaboration other stakeholders like Dzongkhag, LG members and local communities. All activities such as surveys, plantations, monitoring, surveillances and community-based activities will be implemented by the field offices (Tsirangtoe, Mendrelgang and Tsirang Range). While implementation the plans, the KBA implementation frame work will be followed.

Conceptual framework for KBA



Monitoring and Evaluation Framework

Objectives	Action	Output indicator	Baseline	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 smart patrolling regularly*	*Nos of Patrols conducted*	*0*	*Nos*	*36*	*36*	*36*	*36*	*36*	*36*	*36*	*36*	*36*	*36*
	Action 2: Provide field gears/equipments for smart patrolling	*Set of Field gears procured*	*0*	*Sets*	*35*					*35*				
	Action 3:Create awareness on importance of WBH conservationat at community and institution level	*No of participants involved*	*0*	*Nos*	*200*		*200*		*200*		*200*		*200*	
	Action 4: Conduct regular population, nest and habitat monitoring and data gathering	*No of survey carried out*	*0*	*Nos*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	
	Action 5:Provide necessary equipments to monitor and gather data to staffs engaged	*Set of equipments purchased*	*0*	*Sets*	*3*									
	Action 6: Conduct stakeholder capacity building workshop to monitor and	*No of participants involved*	*0*	*Nos*	*25*			*25*				*25*		

Objectives	Action	Output indicator	Baseline	Unit	Yearly target									
					Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
	encourage birdwatching, photography ethics.													
	Action 7: Plantation of trees within community forest	*Hactres of CF area planted*	*0*	*Acres*		*7*	*7*	*7*	*7*	*7*	*7*	*7*	*7*	
	Action 8:Support CFMG with nursery development	*No of Nursery supported*	*0*	*Nos*	*2*									
	Action 9:Carryout habitat restoration plantation in key degraded habitats	*Hactres of SRF area planted*	*0*	*Hactres*		*1*		*1*			*1*			
Objective 2. Enhancement/Diversification of Local Livelihood opportunities	*Action 1:Support and supply fingerlings and fishery ponds as part of alternative livelihood*	*No of H/Hs supported*	*0*	*Nos*	*1*	*1*	*1*							
	Action 2:Crop compensation scheme to compensate loss of crops and livestock	*No of Groups formed*	*0*	*Nos*		*1*				*1*				
	Action 3:Support planting fruits trees and grass to nearby communities	*No of Seedlings supplied*	*0*	*Nos*	*1400*	*1400*	*1400*							

Table2: Monitoring framework

References

DoFPs. (2010). Golden Mahseer Conservation action plan for Bhutan(2022-2032). Securing "Tigers of the Rivers".

RSPN. (2022). White-bellied Heron (Ardea insignis) Conservation Action Plan.(2022-2032)

DoFPs. 2018. Tiger action plan for Bhutan(2018-2023). A land scape approach to Tiger conservation.

1Annexure

1.List of floral in Key biodiversity area

sl no	**Name of species**	**local name**	**% of species**	***Abundances (common/rare)***
1	*Albizia procera*	*Seto seris*	12.73	Dominant
2	*Callicarpa arborea*	*Guyelo*	3.64	Predominant
3	*Duabanga grandiflora*	*Lampatey*	2.73	
4	*Sterculia villosa*	*Odal*	2.73	
5	*Ficus semicordata*	*Khanew*	2.73	
6	*Alstonia scholaris*	*Chatiwan*	0.91	
7	*Melotus phillippinensis*	*Sindurey*	11.82	Dominant
8	*Tetrameles nuidiflora*	*Maina*	2.73	
9	*Bombax ceiba*	*Simul*	2.73	
10	*Lagerstroemia spp*	*Sidha/Jarul*	15.45	Dominant
11	*Bridelia retusa*	*Gayo*	3.64	Predominant
12	*Steriospermum suaveolens*	*Parari*	2.73	
13	*Amblica officianales*	*Amla*	0.91	
14	*Mangifera sylvatica(wild)*	*Amp*	1.82	
15	*Spondias mengifera*	*Amaro*	7.27	Predominant
16	*Dendrocalamus hamiltonii (bamboo)*	*Choya bans*	5.45	Predominant
17	Gmelina arborea	Gamari	2.73	
18	Trema orientalis	Kuyel	0.91	
19	Bahunia purpurea	Tanki	2.73	
20	Figus bengalensis		0.91	
21	Zizyphus	Baher	0.91	
22	Garuga pinata	Dabdabey	7.27	Predominant
23	Wrightia tomentosa	Khira	4.55	Predominant

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2.List of Mammals

sl no	Common name	Scientific name	Status
1	Grey langur	*Trachypithecus pileatus*	Vulnerable
2	Rheus macaque	*Elephas maximus*	Endangered
3	wild Boar	*Sus scrofa*	least concern
4	Goral	*Naemorhedus goral*	Near threatened
5	Procupine	*Crested procupine*	Hystricidae
6	Barking deer	*Muntiacus muntjak*	Least concern
8	Squirrel	*Petaurista nobilis*	Near threatened
9	Smooth otter	*Lutrogale perspicillata*	vunerable
10	Golden Langur	*Trachypithecus geei*	Endangered

3.List of Birds

Sl .no	Comman name	Scientific name	Famliy
1	Common Buzzard	*Buteo buteo*	Accipitridae
2	Greater Yellownape	*Chrysophlegma*	Picidae
3	River Lapwing	*Vanellus duvaucelli*	Charadriidae
4	White crested laughingthrush	*Garrulax leucolophus*	leiothrichidae
5	Black drongo	*Dicrurus macrocercus*	Dicruridae
6	Red vented bulbul	*Pycnonotus cafer*	Pycnonotidae
7	Grey- headed Canary Fly catcher	*Culicicapa ceylonensis*	Stenonstiridae
8	Oriental Turtel Dove	*Streptopelia orientalis*	Columbiformes
9	Common mayna	*Acridothera tristis*	Sturnidae
10	Asian barred owlet	*Glaucidium cuculoides*	Strigidae
11	White bellied Heron	*Ardea insignis*	Ardeidae
12	Greenish warbler	*Phylloscopus*	Phylloscopidae
13	Black Stork	*Cicinia nigra*	Ciconiidae
14	Rufus treepie	*Dendrocitta vagabunda*	Corvidae
15	Great barbet	*Megalaima virens*	Megalaimidae
16	Great Hornbill	*Buceros bicornis*	Bucerotidae
17	Whistler warbler	*Phylloscopus whistler*	Phylloscopidae
18	Black capped redstart	*Phoenicurus ochruros*	Turdidae
19	Indian Roller	*Coracias benghalensis*	Coraciidae
20	White-throated Kingfisher	*Halcyon smyrnensis*	Alcedinidae
21	Crested Kingfisher	*Magaceryle luglugubris*	Alcedinidae
22	Speckled Piculet	*Picumnus innominatus*	picidae

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