



Human–Wildlife Conflict Management

Conflict to Coexistence (C2C) Strategy for
Naja Gewog, Paro (2026–2030)

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



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Abbreviations

AI	Artificial Insemination
BES	Bhutan Ecological Society
BHU	Basic Health Unit
BTFEC	Bhutan Trust Fund for Environmental Conservation
C2C	Conflict to Co-existence
DFO	Divisional Forest Office
DoFPS	Department of Forests and Park Services
FMID	Forest Monitoring and Information Division
HHs	Households
HWC	Human-Wildlife Conflict
IKI	International Climate Initiatives
M&E	Monitoring and Evaluation
NCD	Nature Conservation Division
NFE	Non- Formal Education
NGOs	Non- Governmental Organizations
NWFPs	Non-Woof Forest Products
PHCB	Population and Housing Census of Bhutan
QRT	Quick Response Team
RGoB	Royal Government of Bhutan
RSPN	Royal Society for Protection of Nature
SSA	Safe System Approach
SMART	Spatial Monitoring and Reporting Tool
UNDP	United Nations Development Programme
WWF	World Wildlife Fund



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Royal Government of Bhutan
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Foreword



Bhutan's rich natural heritage and the deeply rooted ethos of living in harmony with nature have long guided our development philosophy. However, the increasing interface between human settlements and wildlife habitats has led to rising human-wildlife conflict (HWC), posing a significant challenge, particularly for rural communities whose livelihoods depend closely on forests and natural resources. The Conflict to Coexistence (C2C) strategy for Naja gewog under Paro Dzongkhag represents a

timely and structured response to this challenge, grounded in participatory and evidence-based approaches.

This document has been developed by the Divisional Forest Office (DFO) at Paro, following comprehensive field assessments and extensive consultation with local government and local communities of Naja Gewog. It emphasizes the mitigation of conflict with key wildlife species, while simultaneously enhancing community livelihoods, safeguarding critical habitats and fostering conditions that allow wildlife and people to coexist harmoniously through proactive prevention, targeted mitigation measures and robust local engagement. The preparation of this strategy has been made possible through the generous financial support of the International Climate Initiative (IKI) Project, World Wildlife Fund (WWF) Bhutan, under the project "Living Landscapes: Securing High Conservation Values in South-Western Bhutan". On behalf of the Department of Forests and Park Services (DoFPS), I wish to express my heartfelt appreciation and commend the communities and local government of Naja gewog, and the DFO at Paro for their dedicated engagement and valuable contributions. I am confident that this strategy will serve as a guiding framework for resilient communities, thriving wildlife and the continued realization of Gross National Happiness.

(Karma Tenzin)
Director

Acknowledgement

The C2C strategy for Naja gewog is the result of a collective and dedicated effort by the staff of the DFO, Paro in close collaboration with the Naja Gewog Administration. The Division sincerely acknowledges the commitment, professionalism and teamwork demonstrated by all officers and staff as well as the active participation and support of the local government, who contributed their time, experience and technical inputs toward the successful formulation of this strategy. Their sustained engagement throughout the process ensured that the document is comprehensive, practical and grounded in field realities.

The formulation of this strategy was made possible through the unwavering support and guidance of the DoFPS and WWF, Bhutan along with the constructive involvement of the Naja Gewog Administration. The DFO, Paro is deeply grateful for their strategic direction, technical advice and continuous encouragement. The DFO further expresses its sincere gratitude to the IKI Project, “Living Landscapes: Securing High Conservation Values in South-Western Bhutan,” for its generous financial support, which enabled the conduct of comprehensive socio-economic and field surveys in close coordination with the local government. The data generated through these assessments formed a critical foundation for evidence-based planning and significantly informed the management interventions contained in this strategy. WWF-Bhutan, together with the Project Coordination Unit and with facilitation from the Gewog Administration, played a pivotal role in timely procurement of essential equipment and field gear and in delivering capacity-building programs. These interventions greatly strengthened the technical capacity of the field teams involved in the assessment.

The DFO at Paro would like to extend special appreciation to Mr. Sonam Phuntsho, Deputy Chief Forestry Officer and Mr. Lham Dorji, Forestry Officer of the DFO, Paro, who played a crucial leadership role in guiding and coordinating the formulation of this strategy in collaboration with the Gewog Administration. Their dedication, technical oversight and leadership were instrumental in bringing the C2C planning process to completion. Finally, the DFO extends its heartfelt thanks to all individuals, institutions and stakeholders who in various capacities, contributed to the development of this strategy. Their collective efforts have resulted in a key milestone that will guide HWC management and promote sustainable co-existence in Naja Gewog in the years to come.

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1. Introduction

The HWC constitutes a major global challenge, occurring when interactions between humans and wildlife result in detrimental outcomes for both parties (FAO, 2021; Conover, 2002). While humans and wildlife have coexisted for centuries, rapid population growth, escalating development pressures and widespread habitat loss and fragmentation have significantly intensified both the frequency and severity of such conflicts (Kiogora & Gathoni, 2021). HWC typically manifests through crop raiding, livestock depredation, property damage and human injuries or fatalities, thereby undermining rural livelihoods and deepening poverty (World Bank, 2023; Tobgay et al., 2019). Conversely, retaliatory responses by affected communities often place additional pressure on already vulnerable wildlife populations, further complicating conservation and sustainable management efforts.

Naja gewog under Paro Dzongkhag is also one of the HWC affected gewogs among 10 gewogs under the Dzongkhag, primarily an agrarian society, with the majority of its population dependent on agriculture and livestock as their main sources of income and livelihood. Most settlements in the Gewog are located within or near forests, which cover approximately 80% of the area, predominantly conifer forests (PFD, 2023). The community rely on forest for firewood, timbers, leaf litter, top soils, NWFPs and many more. The community's reliance on forest resources creates a close connection. This close human-nature interface increases the frequency of wildlife incursions, resulting in significant crop losses, livestock predation, property destruction and threats to human safety (Wangchuk et al., 2023; NCD, 2021).

HWC is widespread across all gewogs, with the vast majority of households affected. Crop depredation constitutes the most significant impact, severely undermining agricultural productivity and household food security, while livestock losses further exacerbate livelihood vulnerability. The cumulative crop damage over recent years has imposed substantial economic strain on farming communities, with marked spatial variation in severity with some Gewogs experiencing disproportionately higher household level losses than others. Naja Gewog is among the most severely affected Gewog that experiences comparatively higher impacts.

Despite interventions such as electric fencing, solar installations and compensation schemes, the effectiveness of these measures is constrained by limited funding and short-term project support. There is insufficient attention to spatial patterns of HWC, which are critical for identifying hotspots and prioritizing mitigation (Letro et al., 2021; Thinley et al., 2021; WWF, 2023).

To address these complex challenges, integrated and adaptive management approaches are increasingly promoted at the global level. The Conflict to Coexistence (C2C) approach, introduced in 2023 as an evolution of the

Safe Systems Approach (SSA), offers a structured seven-step framework to support systematic and effective management of HWC (WWF, 2023).

Drawing on lessons learned from the SSA, particularly its limitations in rapid assessment and on-ground implementation the C2C model places strong emphasis on Co-design with local communities and relevant stakeholders, thereby ensuring inclusive, participatory and context-responsive interventions. Through the promotion of collaboration, adaptive management and innovation, the C2C framework aims to reconcile biodiversity conservation objectives with the safeguarding of rural livelihoods, providing a viable pathway toward sustainable long-term coexistence within shared landscapes (Stone & Nyaupane, 2018; Wangdi et al., 2018).

2. Goal and Objectives

Goal: : *“To ensure harmonious co-existence between wildlife and people through holistic approach”*

Objectives:

1. Safeguard people and their livelihood/assets alongside wildlife presence.
2. Secure wildlife and its habitat to sustain a healthy and resilient wildlife population.

3. Methodology

3.1. Site Description

Naja gewog, one of the 10 gewogs in Paro, is situated in the southern part of the dzongkhag. It shares boundaries with Shaba and Dogar gewogs to the east, Lungnyi gewog to the north and Haa Dzongkhag to the southwest. Administratively, the Gewog comprises of five Chiwogs (Figure 1) encompassing 22 villages and a total of 735 households. The area is located at elevations ranging from 2,290 to 2,700 meters above sea level (masl) and is characterized predominantly by gentle slopes. According to the Population and Housing Census of Bhutan (PHCB, 2017), the Gewog has a total population of 3,002, comprising 1,471 males and 1,531 females.

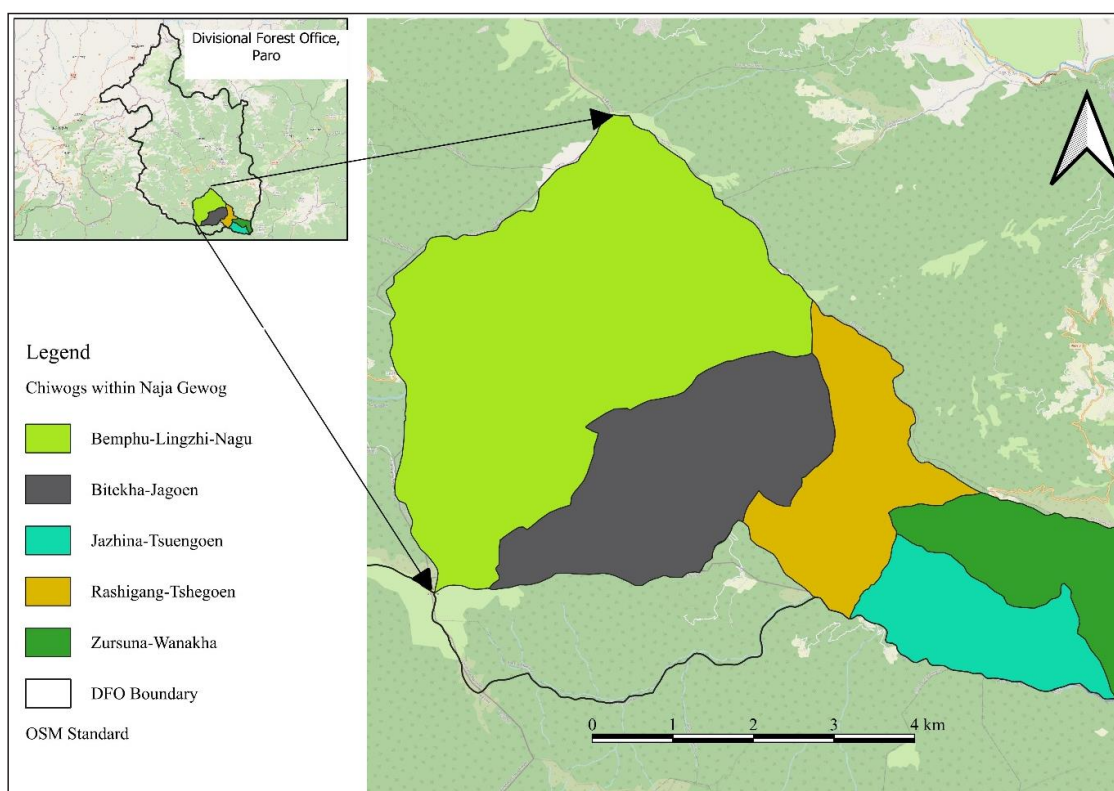


Figure 1: Map of Naja gewog

The gewog is well connected by farm roads to all chiwogs with a total road length of 91.8 kilometers. National highway runs through the Gewog connecting Paro and Haa dzongkhag. Majority of the population relies on agriculture and livestock farming with other off-farm activities to support their livelihoods. The average landholding per household is approximately three acres, predominantly dry land. All households within the gewog are electrified and has full mobile network coverage. In terms of public services and infrastructure, one Basic Health Unit (BHU), one central school, two middle secondary schools, one community school and three Early Childhood Care and Development (ECCD) centers located within the Gewog.

3.2 Methods: C2C Framework

The design is grounded in the approaches and guiding principles of the C2C framework. The C2C approach constitutes a structured and integrated model intended to support the systematic planning, implementation and monitoring of HWC management, underpinned by the principles of holism, resilience, shared responsibility and tolerance. It is founded on four core assumptions, which posit that all four primary outcomes must be realized to achieve effective HWC management. By offering clear, stepwise guidance, the approach promotes integrated and holistic strategies that reconcile long-term, sustainable solutions with short and medium-term interventions.

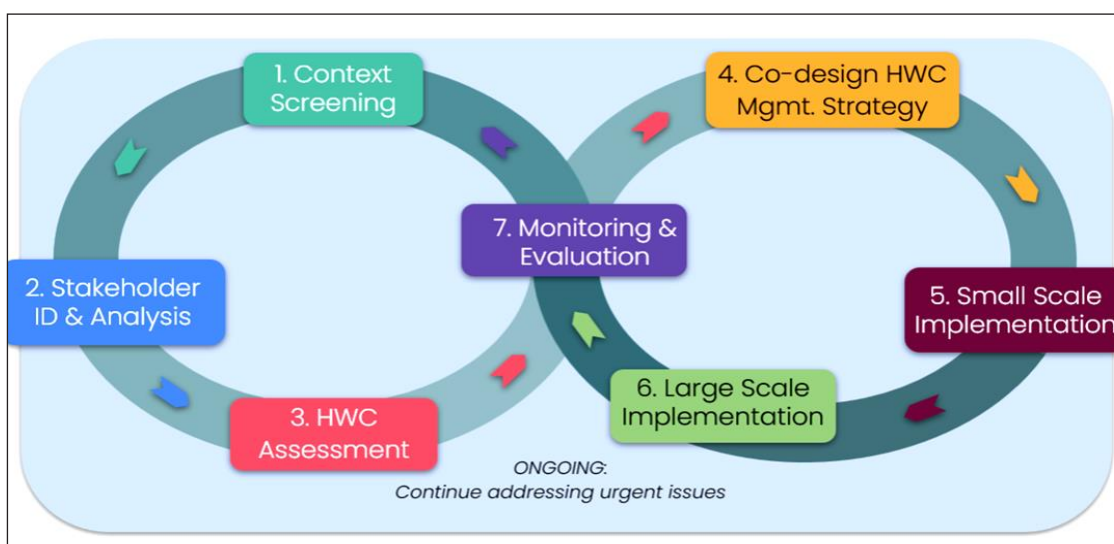


Figure 2: C2C Framework to ensure effective and sustainable HWC management (C2C Guideline)

3.2.1. C2C Process

Step 1: Context Screening

Context screening is the initial phase of the assessment process, aimed at identifying and analyzing the specific characteristics of a landscape and its prevailing HWC dynamics. Before completing this step, the C2C project manager gathered all relevant baseline information, such as social landscape mapping, government census records and other pertinent resources, to achieve a comprehensive understanding of the landscape.

In consultation with forestry officials and stakeholders including local government officials, the context screening was conducted using C2C Tool 4. This involved detailing the site (e.g., landscape information, demography and livelihoods), trends in HWC (e.g., records of conflict species, frequency/severity and types of conflict and the management interventions), drivers of HWC (both human-induced and natural drivers), wildlife dynamics (trends in conflict and prey species, movement of species through the landscape and conflict drivers) and relevant policies.

Step 2: Stakeholder Identification and Analysis

Stakeholders are individual or group of individuals who have an interest in particular. Typically, multiple stakeholders are involved in HWC scenarios where some groups are directly impacted by HWC, while others are involved in its management. In addition, some stakeholders are not directly affected but are highly influential. For C2C strategy, it is crucial to understand the stakeholders involved in HWC and their collaborative potential.

A core team was constituted comprising the forestry officials, local government officials, Gewog Agriculture and Livestock Extension Supervisors

and Tshogpas from five chiwogs. The stakeholder identification and analysis were conducted employing the stakeholder analysis matrix, a C2C Tool 5, that involved clustering of stakeholders (Table 1). The matrix employed a systematic evaluation process by answering a series of questions on a scale of 1 to 5, focusing on the following aspects:

- stakeholders' interest in HWC and its management in the Naja gewog,
- their influence on the long-term success of the HWC management and
- their availability to participate in the co-design of the HWC management strategy.

Table 1: Stakeholder Analysis Matrix for Naja gewog

Group, Organization or Individual NAME	INTEREST in HWC and its management in this landscape	INFLUENCE on long-term success of a HWC management strategy	AVAILABILITY to participate in the co-design of a HWC management strategy	Categories
	(1 - 5)	(1 - 5)	(1 - 5)	
Wanakha HSS, Bitekha MSS, Rashigang Pry. School	3	4	3	Medium interest, availability and high influence
Gewog Based Community police	3	2	2	Medium interest and low influence, availability
BHU, (Bitekha)	3	2	2	
Norbu Wood based Industry	3	2	2	
General Reserve Engineer Force (GREF)	3	1	1	
Gewog Agriculture Extension Officer	4	4	4	High interest, influence, and availability
Mangmi	4	4	4	
Gewog Livestock Extension Officer	4	4	4	
Forestry (1)	5	5	5	
Gup	4	5	4	
Rashigang Tsogpa	4	5	5	
Wanakha Tshogpa	4	5	5	
Tsundugonpa Tsogpa	4	5	5	
Lingshi Tsogpa	4	5	5	
Bitekha Tsogpa	4	5	5	
Tokha Nyemo CF Chairman	4	4	4	
Drakartsen CF chairman	4	4	4	
Dungkar Akhel CF Chairman	4	4	4	
Jaba Lingshi CF Chairman	4	4	4	
Nagu CF Chairman	4	4	4	
ND sawmill	4	4	4	
Farmers	5	5	4	

Gewog Administration Officer	3	2	4	Medium interest, low influence, and high availability
Early Child Care Development (ECCD) - Rashigang & Bitekha.	3	2	3	Medium interest, availability and low influence
Jabagonpa Lhakhang (Lam)	4	4	3	High interest, influence and medium availability
Tsundugonpa Lhakhang (Lam)	4	4	3	
Gurugang Zangdo Pelri(Lam)	4	4	3	
Tshedragonpa (Lam)	4	4	3	
Yangchengonpa (Lam)	4	4	3	
Businees Community	3	3	1	Medium interest, influence and low availability
Cee Dee Mushroom Venture	4	3	4	High interest, availability and medium influence
Poultry Farming Tsundugonpa & Bitekha	4	3	4	
Dogar Cable Services	2	1	1	Low interest, influence, and availability
G2C	2	3	1	Low interest, availability and medium influence

Stakeholders were classified into two categories; duty bearers/service providers (indicated with blue font) and community members (indicated with green font). A total of 25 duty bearers/service providers and nine community members were identified (Table 1). The stakeholder analysis highlighted a diverse range of interest, influence and availability levels among groups involved in the HWC management strategy.

Step 3: HWC Assessment

The assessment consists of tailored questionnaires for two stakeholder groups; duty bearers/service providers and community members. The structure captured diverse perspectives and compared how views align or differ across six elements; Policy, Prevention, Response, Understanding the Conflict, Mitigation and Monitoring within the four outcomes; People, Livelihoods/Assets, Habitat and Wildlife. Questionnaire addressed to Duty Bearers/Service Providers assess the effectiveness and adherence to HWC policies and programs. Conversely, questions presented to Community Members evaluated their experiences, awareness and perceptions of these initiatives, utilizing a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

The assessment was carried out employing survey questionnaires, applying Yamane's (1967) formula at 95% confidence level (Yamane, T., 1967). After conducting a training session and pre-testing the household survey, data collection was undertaken in the month of April and May 2025. One-on-one household surveys were undertaken across all Chiwogs, engaging seven service providers/duty bearers, along with 247 community members selected through random selection (Table 2).

Using the formula,

$$n = \frac{N}{1 + Ne^2},$$

Where n = Sample size; N = Total Population/HHs; e = level of precession (e.g. 5% or 0.05). The total household in the study area from five Chiwogs is about 645 HHs for Naja. Therefore, the sampling frame for the survey was 247 households (Table 2).

Table 2: Household Survey from each Chiwog under Naja gewog

Chiwog	No. of households	Sample size
Bhemphu-Lingzhi-Nagu	96	37
Bueltikha-Jagoen	116	44
Jazhina-Tsuengoen	112	43
Rashigang-Tshegoen	135	52
Zursuna-Wanakha	186	71
Total	645	247

After determining the total sample size for the gewog, the sample size was proportionately distributed among the chiwogs based on the number of households to ensure fair representation. However, during the enumeration, data were collected for only 240 HHs due to non-availability of the respondents at the time of survey. Efforts were undertaken to alternate between male and female respondents to reduce gender bias in the sampling process.

The proportional allocation formula is:

$$n_i = \frac{N_i}{N} \times n$$

Where, n_i = Sample size for a specific Chiwog, N_i = Population of that Chiwog, N = Total households in the Gewog and n = total calculated sample size for the Gewog.

In each chiwog, a complete list of households (sampling units) was prepared and numbered sequentially (e.g., 1 to N). From this list, households for interview were selected using systematic random sampling combined with random number generation to ensure fairness and to avoid bias and cluster selection. A random starting number was first generated using the Random Number Generator, and this number became the first selected household. For the remaining selections, subsequent households were identified by adding the sampling interval to the starting number. This process continued until the required sample size (n) was reached. The method ensured that every household had an equal and independent chance of selection, thereby

minimizing selection bias and cluster effects while maintaining statistical reliability.

The statistically robust and representative findings generated through the assessment therefore served as the evidence base for initiating the participatory co-design of context-specific C2C strategies with the communities and relevant stakeholders.

Step 4: Co-design

The Co-design of C2C strategy involved a stakeholder consultation in all the chiwogs of Naja gewog from 22nd to 24th July, 2025 involving key stakeholders such as local government representatives (*Gup* and *Tshogpa*), RNR officials (Livestock and Agriculture), forestry officials and community members. The development of the C2C strategy was adopted through participatory approaches. The inclusive process ensured that the strategies were closely aligned with the needs and perspectives of the local communities. A total of 252 HHs participated in the consultation process for the co-designing C2C strategy for Naja gewog, with 58% of participants being male (n = 147) and 42% female (n = 105) (Table 3).

During the consultation meeting, the results of the C2C assessment were presented with stakeholders through a visual report detailing the overall Gewog status, C2C framework, C2C process, outcome result, elements results, conflict species and specific conditions in each Chiwog allowing participants to validate the results. Group activities were organized to identify various management intervention aimed at managing HWC, categorized into short-term and long-term actions, implementation sites and description of each action.

The individual group presented their strategies and interventions for harmonious co-existence, which were then discussed to validate and refine the proposed actions based on HWC scenario in the chiwog. The compiled actions from the consultation meeting were then reviewed for effective HWC management for over the next five years (2026–2030).

Table 3: Participants from chiwog during Co-design consultation

Sl/No.	Chiwog	Nos. of Participants	Male	Female
1	Bemphu-Lingzhi-Nagu	50	28	22
2	Rashigang-Tshegoen	48	36	12
3	Bitekha-Jagoen	64	35	29
4	Zursuna-Wanakha	59	29	30
5	Jazhina-Tsuengoen	31	19	12
Total		252	147	105
Percentage			58%	42%

Step 5: Small Scale Implementation

The small-scale implementation focused on intervention actions proposed by the communities and relevant stakeholders, designed to be executed within a short time frame, depending on available resources. These activities are practical and manageable, enabling affected communities to take immediate action to address pressing HWC. In Naja gewog, 21 actions have been identified as part of the small-scale implementation and six actions as large-scale implementation program. These actions aim to provide quick and tangible solutions to mitigate the impact of HWC while building momentum for longer-term strategies.



4. Result and Discussion

4.1 Demography and Social Information

Understanding the demographic profile of community members was essential to capture perspectives from the community, providing inclusive and precise representation of their experiences and needs. The efforts were also made to ensure gender-balanced participation in the survey. The final sample comprised 52% female respondents (n = 125) and 48% male respondents (n = 115), indicating slightly higher female representation. Although a total of 247 households were sampled, data collection was completed for only 240 households owing to the unavailability of respondents in certain villages at the time of the survey.

In terms of age distribution, majority of the respondents (39%, n = 93) were aged over 60 years, followed by 36% (n = 86) in the age group of 41-60 years, and 25% (n = 61) in between the age group of 18-40. Regarding educational background, 74.6% (n = 179) of the respondents were illiterate, followed by primary education (12.5%, n = 30), secondary education (9.2%, n = 22), Non-Formal Education (NFE, 2.9 %, n = 7) and tertiary education (college/technical, 0.8%, n = 1). The demographic factor aimed to generate a comprehensive understanding of the community's dynamics, which is essential for designing effective, targeted oriented interventions for managing HWC. The communities are subsistence farmers, dependent on agriculture and livestock farming as a means of their livelihoods and income generation.

4.2 Overall Results of Naja Gewog

4.2.1 Conflict Species of Naja Gewog

Service providers identified bear as the most frequent and severe conflict species followed by barking deer, grey langur, birds, other species and wild pig. While the community members identified grey langur as the problematic and conflict species followed by barking deer, birds, dhole, wild pig, serow, sambar, bear, bats, macaque and birds including other species due to their significant impact on livelihoods, economic losses and human safety (Figure 3).

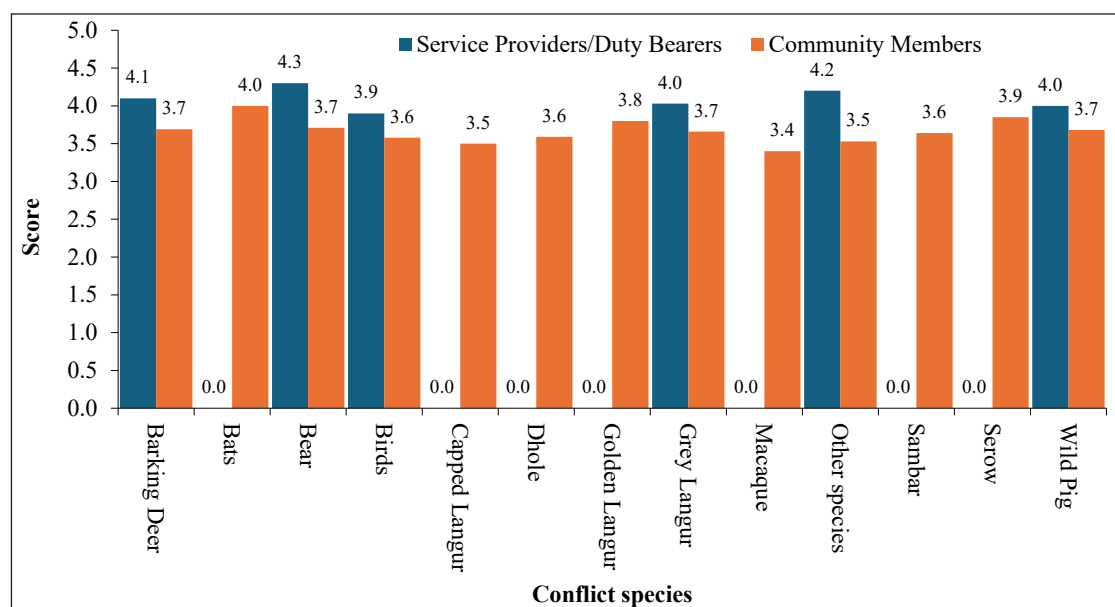


Figure 3: Conflict Species identified for Naja gewog

4.2.2 Status of Outcomes at Gewog level

The C2C strategy for managing HWC has to have positive outcomes across multiple dimensions where, people are able and willing to live alongside

wildlife that would foster harmonious co-existence among people and wildlife. The implementation of interventions will minimize losses from crop damage and livestock predation, securing livelihoods and assets. As a result, retaliatory killing, poaching and tolerance level will be high, allowing wildlife to thrive alongside people and human settlements.

Further to ensured sufficient natural habitats, secured and support sustainable wildlife populations in the wild. The outcomes by addressing these interconnected aspects (people, livelihoods/assets, wildlife, habitat) demonstrated that when people's livelihoods are protected and wildlife is given space to thrive, a harmonious co-existence among human and wildlife becomes possible, benefiting both communities and ecosystem in the long run.

Table 4: Score under each outcome by category of respondents

Outcome	Service Providers/Duty Bearers	Community Members
People	3.67	3.74
Livelihoods/Assets	2.94	2.98
Wildlife	3.57	3.33
Habitat	3.27	3.23

Among the four outcomes, service providers/duty bearers and community members had identified challenges in securing livelihoods and assets as the most critical issue (Table 4). The livelihoods/assets appear to be the most impacted outcome for Naja Gewog, as it has the lowest ratings from both service providers/duty bearers and community members (Figure 4). As a result, interventions designed to mitigate HWC and promote co-existence should prioritize addressing challenges related to livelihoods/assets as the primary focus, followed by Habitat, People, and Wildlife.

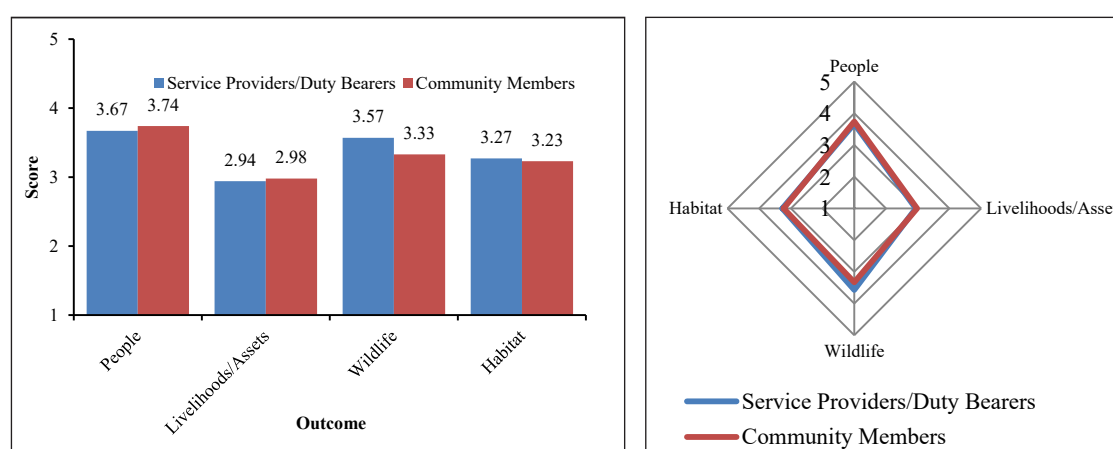


Figure 4: Result by Outcome against scores of community members and service providers

4.2.3 Status of Elements at Gewog level

To achieve the four outcomes, the six essential elements were taken into consideration, each of which was assessed under the respective outcomes. The radar charts illustrate the perception of service providers/duty bearers and community members for different outcomes against six elements of co-existence framework.

The assessment revealed six critical elements that must be considered under each outcome to effectively manage human-wildlife coexistence. The results and findings are as follows:

i. People Able and Willing to Live Alongside Wildlife

Service Providers/Duty Bearers and Community Members rated Understanding of Interaction (UI) the highest, reflecting strong awareness of human-wildlife dynamics, while Policy and Prevention has been rated the lowest. Service Providers/Duty Bearers expressed greater confidence in monitoring and mitigation strategies, whereas Community Members reported stronger confidence in response measures. The low ratings for prevention and policy indicates that, despite a clear understanding of issues, the absence of robust preventive mechanisms and supportive policy frameworks continue to constrain the overall effectiveness of coexistence strategies.

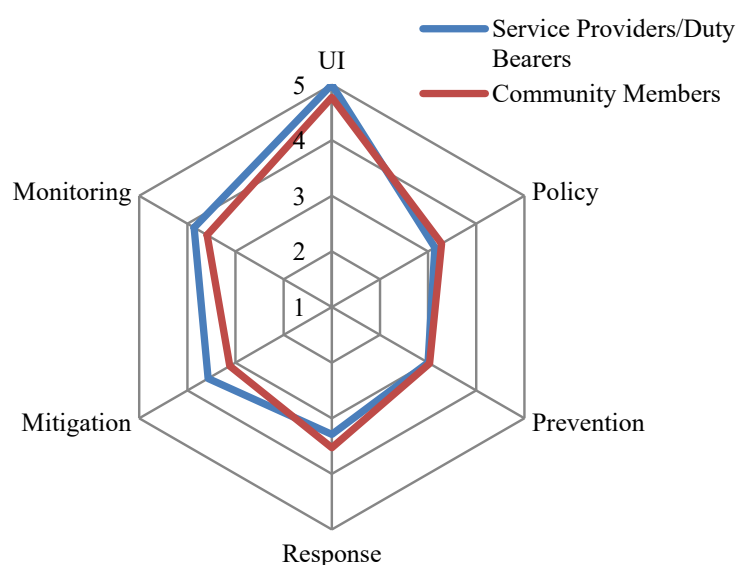


Figure 5: Scores against people able and willing to live alongside wildlife for Naja Gewog

ii. Livelihoods/Assets Secured Against the Presence of Wildlife

Livelihood or the assets of local communities are more vulnerable among the four outcomes and all the six elements are at very weak contribution. Contribution of each element are rated similar level with slightly higher contribution from monitoring and least from mitigation and understanding

the interactions by both the Service Providers/Duty Bearers and community members. This indicates that it is crucial to design mitigation and understanding the interactions related strategies to enhance the security of Livelihoods/Assets Secured Against the Presence of Wildlife.

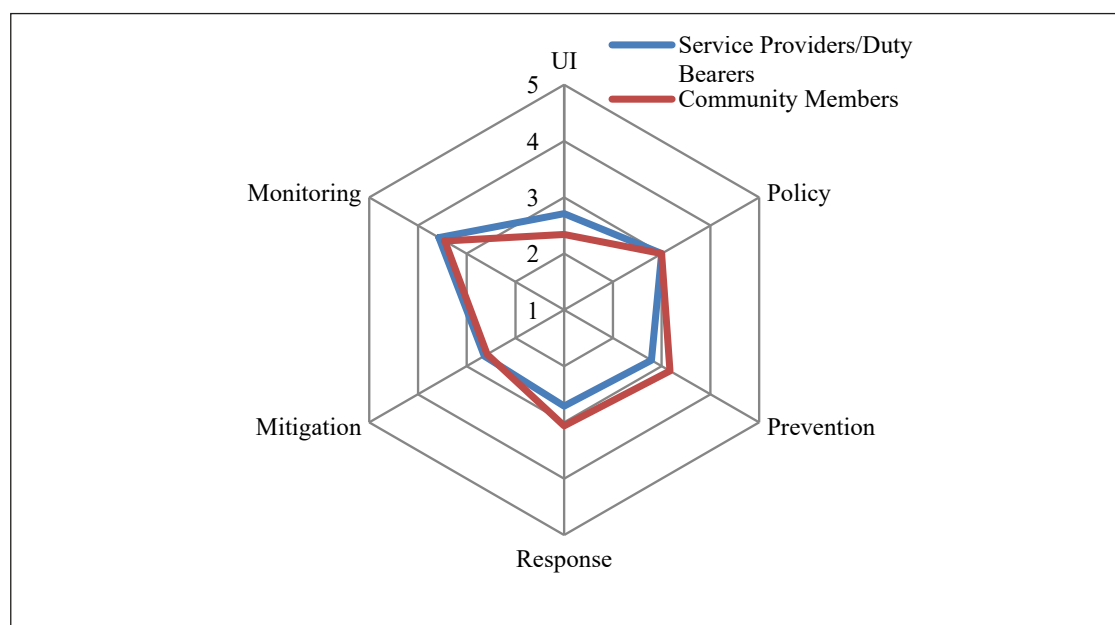


Figure 6: Scores against Livelihoods/Assets secured against the presence of wildlife

iii. Wildlife Thrives Alongside People

Both the group has rated understanding of interactions and policy highest among the elements. However, the lowest rating for mitigation indicates that existing strategies to reduce the impacts of wildlife-related conflicts may be perceived as inadequate or ineffective in meeting their needs. Service Providers/Duty Bearers expressed concern regarding monitoring efforts and strategies, while Community Members highlighted significant concerns over mitigation measures, identifying these as key obstacles to effectively managing human-wildlife coexistence.

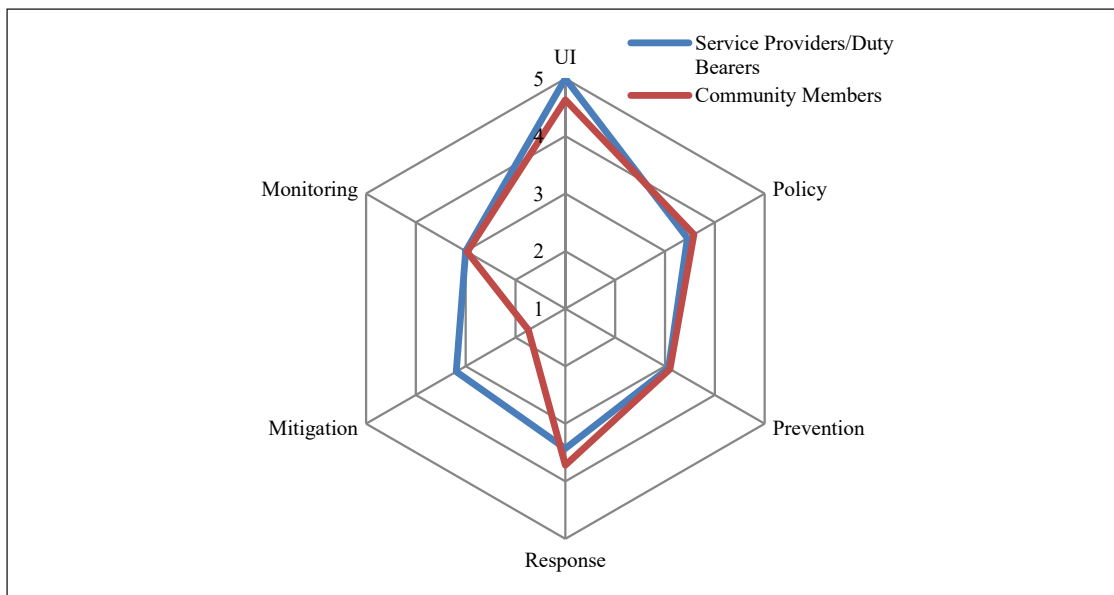


Figure 7: Scores against wildlife thrives alongside people

iv. Habitat Sufficient to Ensure Sustainable Wildlife Populations:

The lowest score within this outcome was associated with the Prevention element, suggesting ongoing degradation of natural resources in the landscape. This decline compromises habitat quality, negatively affecting wildlife populations and heightening the risk of conflict as wildlife encroaches human settlements. Both Service Providers/Duty Bearers and the Community Members emphasized the need to enhance and strengthen the sustainable management and utilization of natural resources.

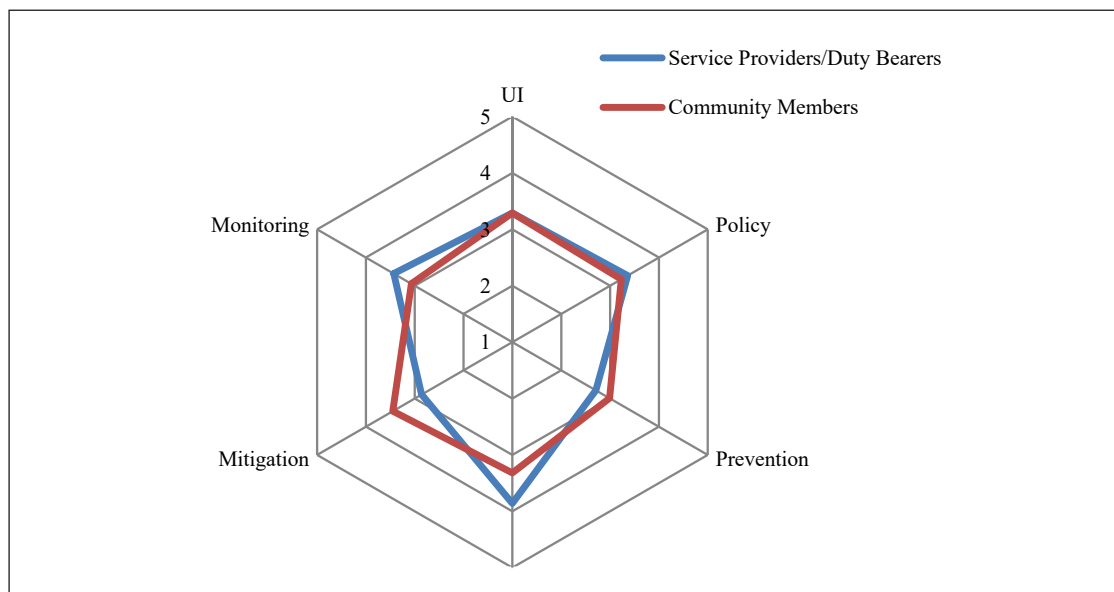


Figure 8: Score against habitat sufficient to ensure sustainable wildlife populations

4.3 Status of Outcomes at Chiwog level

4.3.1 Zursuna-Wanakha Chiwog

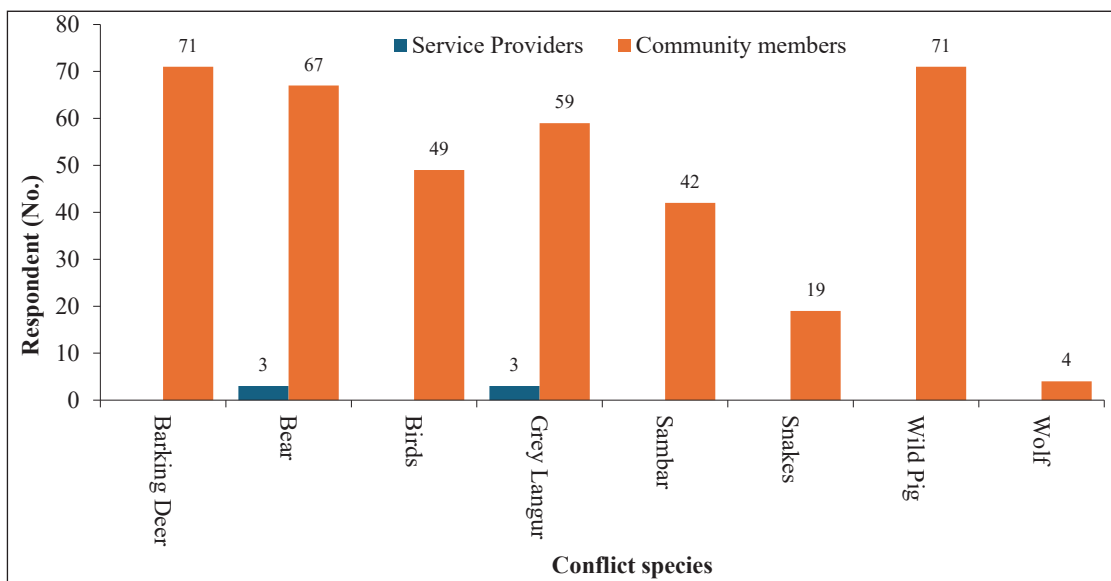


Figure 9: Conflict Species identified for Zursuna-Wanakha chiwog

In Zursuna-Wanakha chiwog, community members identified barking deer and wild pig as the primary conflict species, reflecting their frequent involvement in crop damage and other livelihood-related losses. These were followed by bear, grey langur, birds, sambar, snakes and wolves, indicating a diverse range of species contributing to HWC at the local level. In contrast, service providers identified only bear and grey langur as problematic species (Figure 9). This discrepancy highlights a divergence between community experiences and institutional perceptions, underscoring the importance of integrating local knowledge into conflict assessment and management strategies to ensure that interventions adequately address the full spectrum of conflict species encountered by residents.



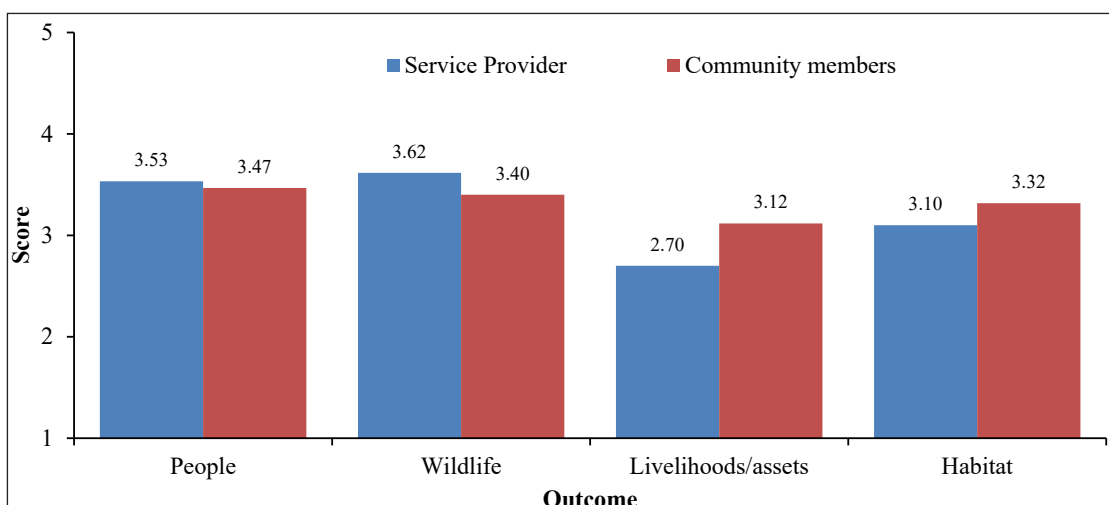


Figure 10: Result by score against each Outcome for Zursuna-Wanakha chiwog

In Zursuna-Wanakha chiwog, the livelihoods and assets outcome received the lowest overall score when assessed by both service providers/duty bearers and community members, relative to other outcome areas (Figure 10). This consistently low rating indicates heightened vulnerability of household livelihoods and physical assets to HWC, particularly through crop loss, property damage and associated economic impacts. In response, interventions aimed at reducing HWC and strengthening human-wildlife coexistence should prioritize the livelihoods and assets outcome. Targeted measures under this outcome will be critical to mitigating losses, enhancing household resilience and ensuring that conflict management efforts translate into tangible socio-economic benefits for affected communities.

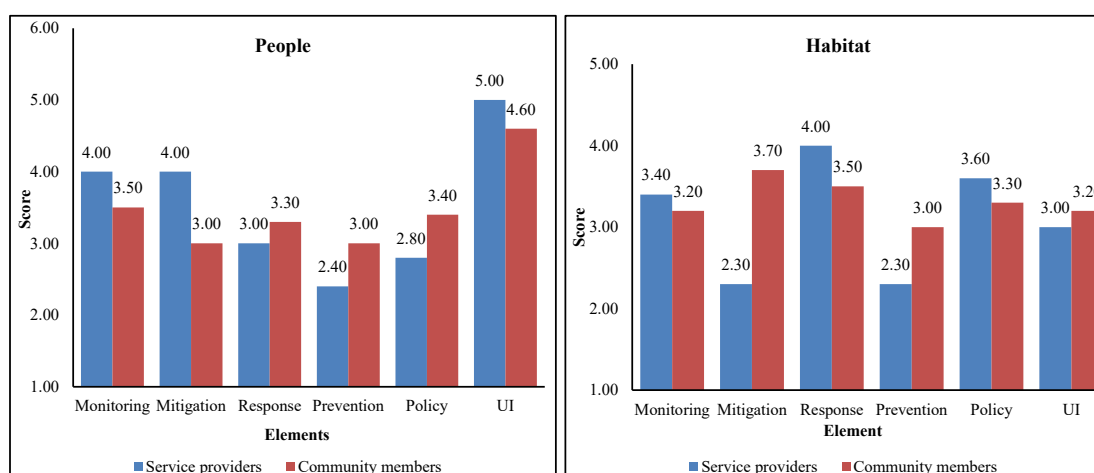


Figure 11: Score against each element of the Outcome (People and Habitat) for Zursuna-Wanakha chiwog

In Zursuna-Wanakha chiwog, prevention emerged as the weakest element under the people and habitat outcome domains, highlighting a limited integration of forward-looking and risk-reduction approaches (Figure 11). The

low rating points to gaps in proactive interventions such as spatial planning, early-warning and monitoring systems and habitat management practices that could reduce the frequency and intensity of human-wildlife interactions before conflicts materialize. This pattern suggests that current efforts are predominantly reactive, responding to incidents after they occur rather than systematically addressing underlying drivers of conflict.

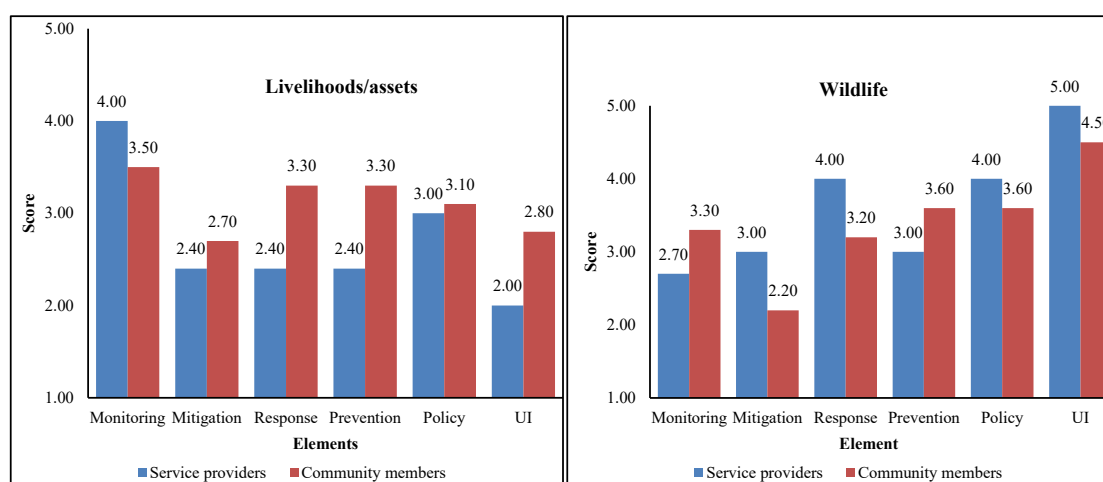


Figure 12: Score against each Element of the Outcome (livelihoods/assets and wildlife) for Zursuna-Wanakha chiwog

In contrast, mitigation was scored as the lowest performance under the livelihoods/assets and wildlife outcome, indicating that existing measures to contain and reduce impacts during conflict events are insufficient (Figure 12). Shortcomings in protective infrastructure, effectiveness and accessibility of compensation mechanisms and the application of non-lethal deterrent measures limit the capacity to safeguard community livelihoods and assets. At the same time, these gaps undermine efforts to reduce injury, mortality and retaliatory harm to wildlife. Strengthening mitigation therefore represents a critical strategic priority to balance livelihood security with wildlife conservation objectives.

4.3.2 Jazhina-Tsuengoen Chiwog

Both service providers/duty bearers and community members consistently recognized wild pig, barking deer, sambar, bear, grey langur and bird species as the primary wildlife causing conflicts within the chiwog. In addition to these commonly identified species, community members also reported porcupine, dhole and bats as contributing to HWC, highlighting their direct experiences with a broader range of species that impact livelihoods, crops and property (Figure 13). This suggests that while formal observations align on major conflict species, local knowledge captures additional species that may not be as widely acknowledged but are nonetheless significant at the community level.

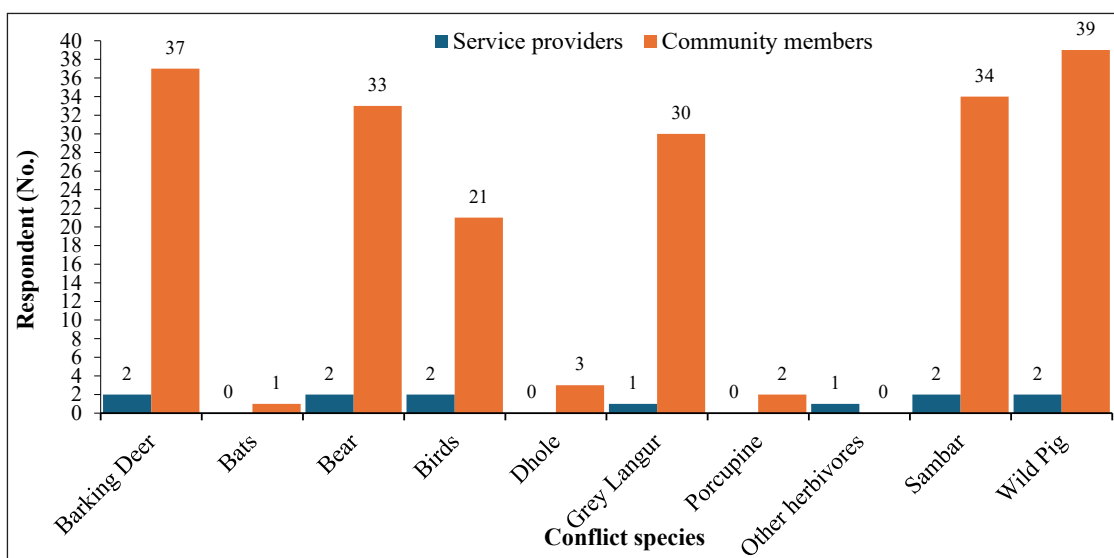


Figure 13: Conflict Species identified for Jazhina-Tsuengoen chiwog

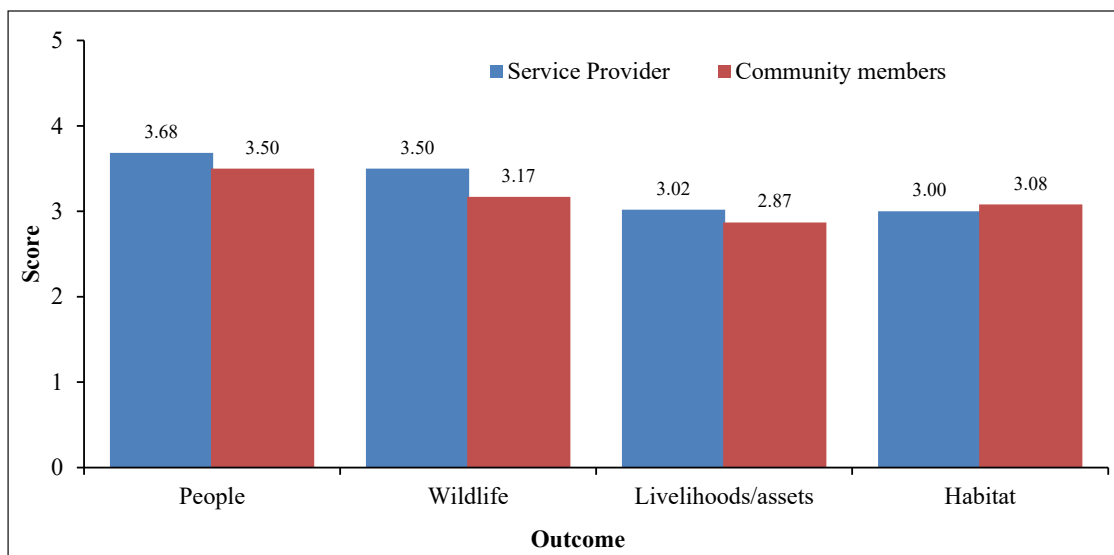


Figure 14: Result by Outcome for Jazhina-Tsuengoen chiwog

Overall, the people outcome was rated the highest by both service providers and community members, indicating relatively stronger performance in terms of human safety and well-being, though some gaps remain at the community level. Wildlife outcomes were perceived more positively by service providers than by community members, suggesting differences between institutional assessments and on-the-ground experiences of conflict persistence. Livelihoods/assets emerged as the weakest outcome for both groups, reflecting ongoing vulnerability of crops, livestock and property and underscoring the need for focused interventions in this area (Figure 14). Habitat outcomes received similar, moderate ratings from both groups, indicating a shared understanding that existing habitat conditions are only partially sufficient to support sustainable wildlife populations and reduce HWC.

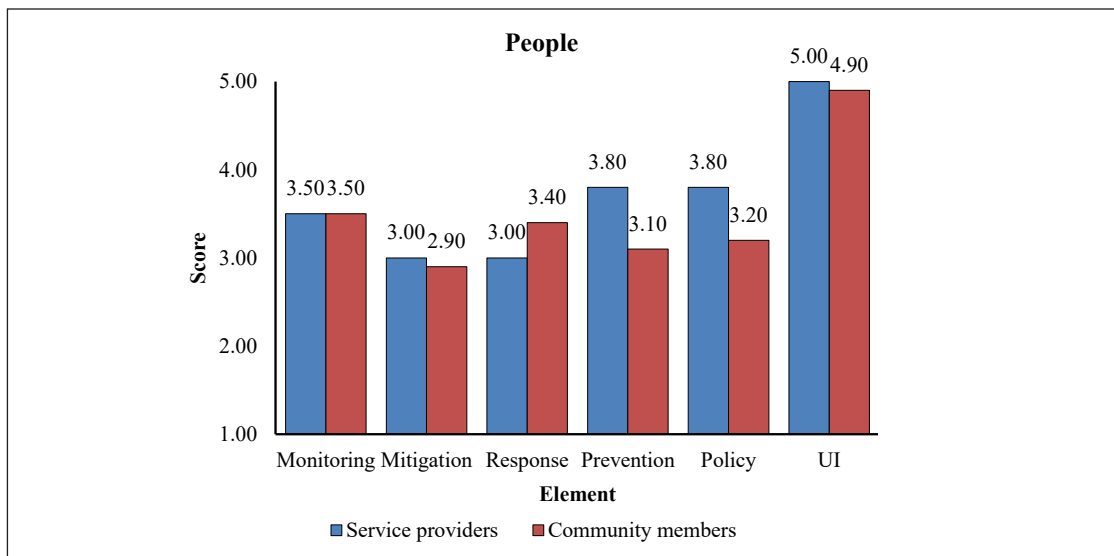


Figure 15: Score against each Element of the Outcome (people) for Jazhina-Tsuengoen chiwog

Both groups rated Understanding of Interaction (UI) the highest, reflecting strong awareness and knowledge related to human-wildlife interactions for people outcome. Prevention received comparatively lower scores, especially from community members suggesting gaps in proactive preparedness and preventive capacities. Service providers generally rated prevention and policy slightly higher than communities.

In case of the outcome-wildlife, UI again emerged as the strongest element for both groups, particularly among service providers. Prevention and mitigation were rated lower by community members, indicating perceived inadequacies in measures that reduce wildlife impacts or prevent conflict at source. Overall, service providers tended to score wildlife-related elements more positively.

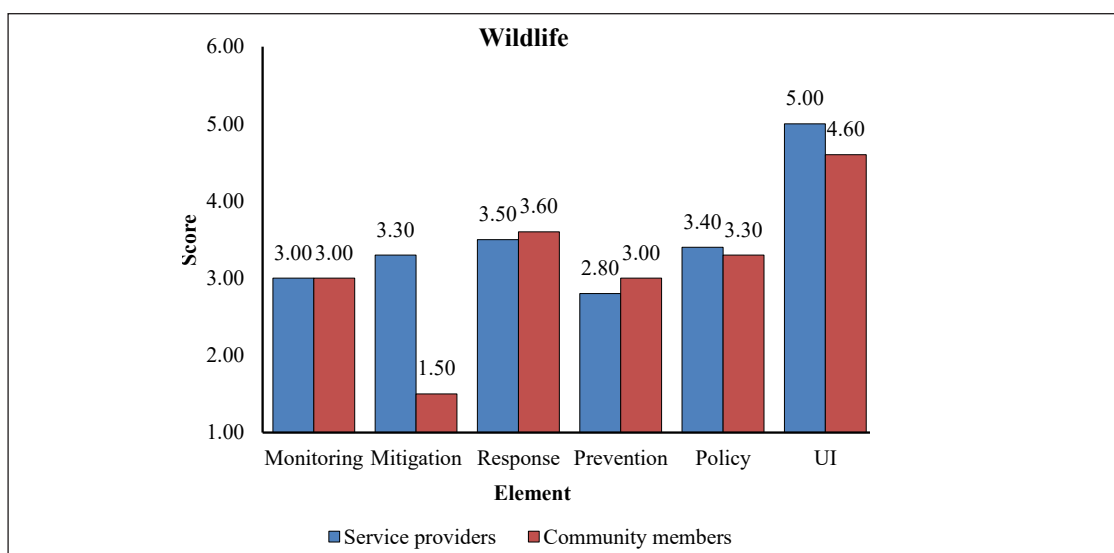


Figure 16: Score against each Element of the Outcome (wildlife) for Jazhina-Tsuengoen chiwog

Scores for habitat outcome were relatively moderate across all elements. Response was rated higher than prevention, while prevention received the lowest score overall, especially from service providers. This suggests that habitat-related actions are more reactive than preventive, with limited emphasis on long-term habitat management.

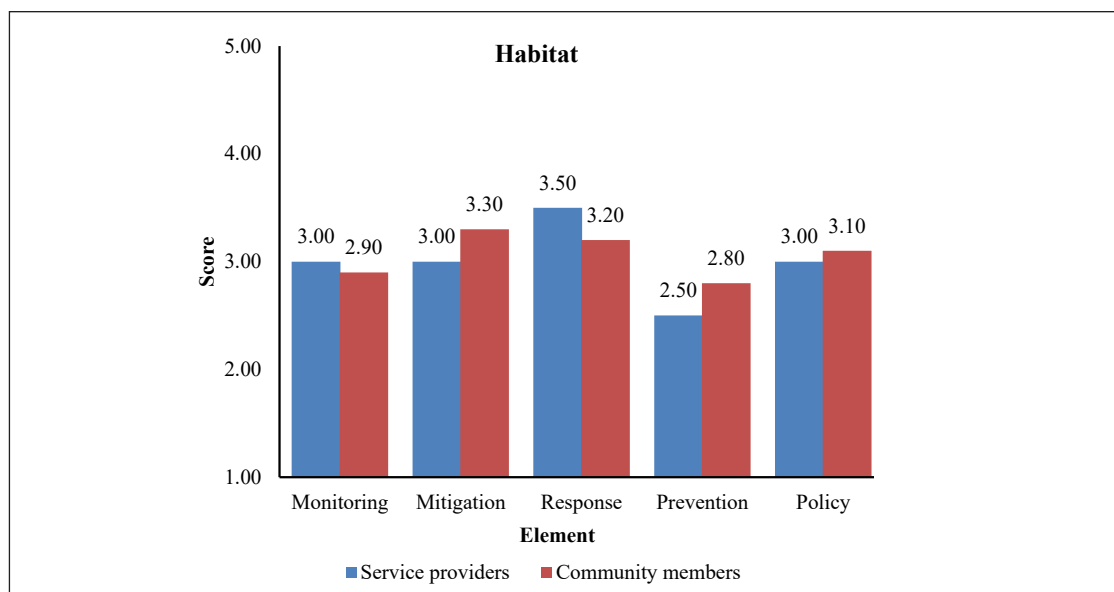


Figure 17: Score against each Element of the Outcome (habitat) for Jazhina-Tsuengoen chiwog

The livelihoods/assets domain showed the weakest performance overall. Mitigation and UI were rated particularly low by community members, highlighting concerns about the effectiveness of measures to protect livelihoods and assets. Service providers consistently rated policy and prevention higher than communities, pointing to a perception gap between planning and on-the-ground effectiveness.

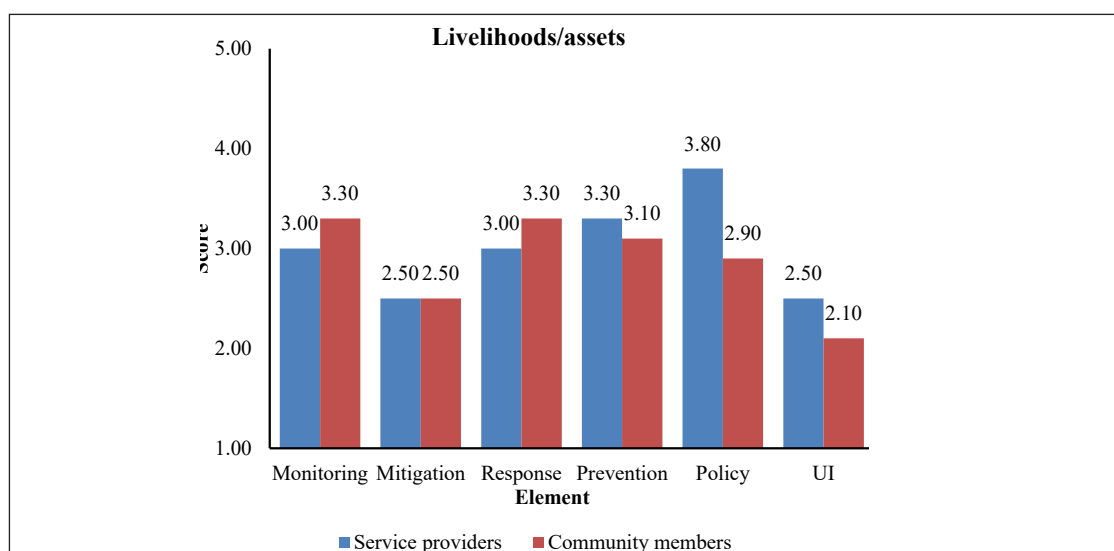


Figure 18: Score against each Element of the Outcome (livelihoods/assets) for Jazhina-Tsuengoen chiwog

4.3.3 Bitekha-Jagoen Chiwog

In Bitekha-Jagoen chiwog, community members identified a broad range of wildlife, including wild pig, bear, barking deer, birds, macaques, rodents, sambar, dhole, tiger, wolf and gaur as sources of HWC, reflecting frequent and direct encounters. In contrast, service providers recognized only grey langur, highlighting a narrower institutional perspective. This gap underscores the need for more inclusive, community-informed conflict monitoring and management.

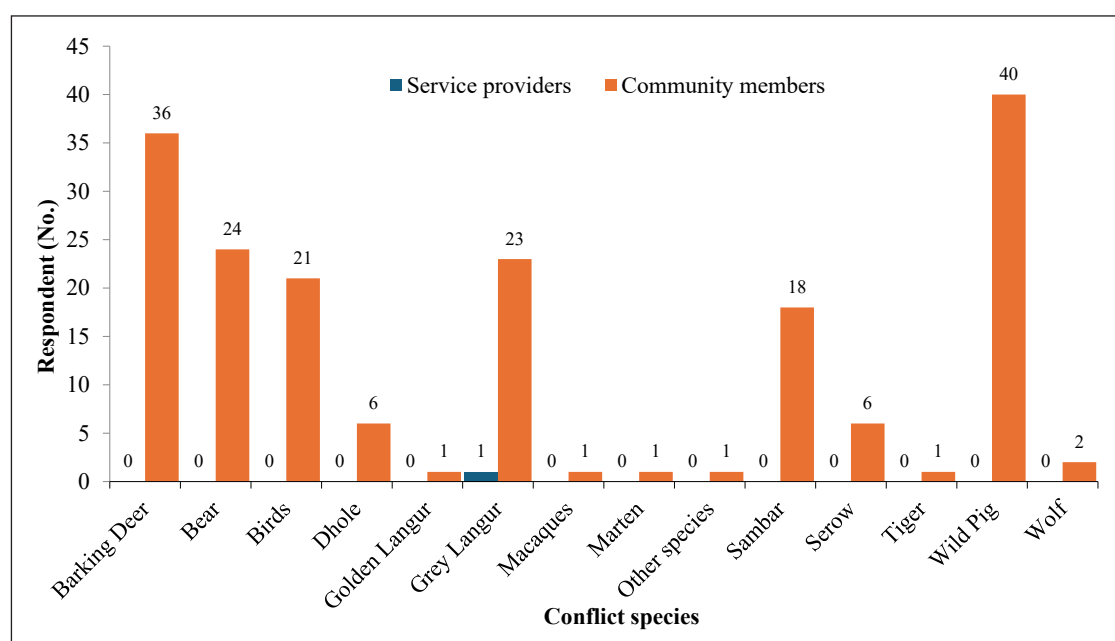


Figure 19: Conflict Species identified for Bitekha-Jagoen chiwog

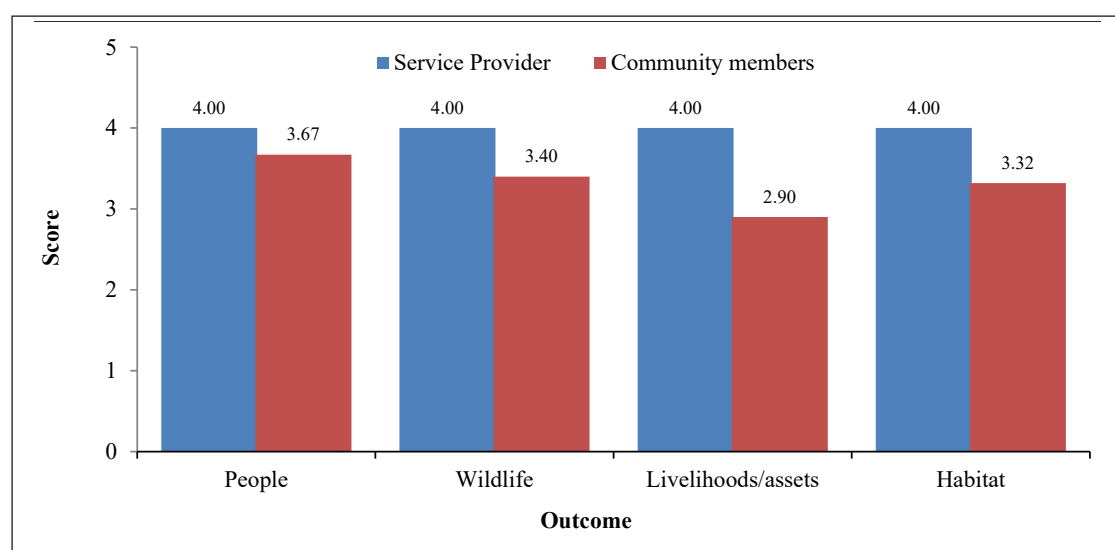


Figure 20: Result by Outcome against scores of service providers and community members for Bitekha-Jagoen chiwog

For Bitekha-Jagoen chiwog, community members rated Livelihoods/Assets as the weakest-performing outcome relative to the other domains, reflecting heightened concerns over economic vulnerability, asset loss and insufficient protection of crops, livestock, and property from HWC. This assessment suggests that, from the community's perspective, existing interventions have been less effective in safeguarding household livelihoods and material assets.

In contrast, service providers/duty bearers assigned equal ratings across all four outcome areas, indicating a more uniform and potentially optimistic institutional perception of performance. The divergence between community and institutional ratings highlights a critical perception gap, underscoring the need for strategy development to more strongly prioritize livelihood and asset protection measures, while aligning programmatic planning with on-the-ground experiences and community-identified risks.

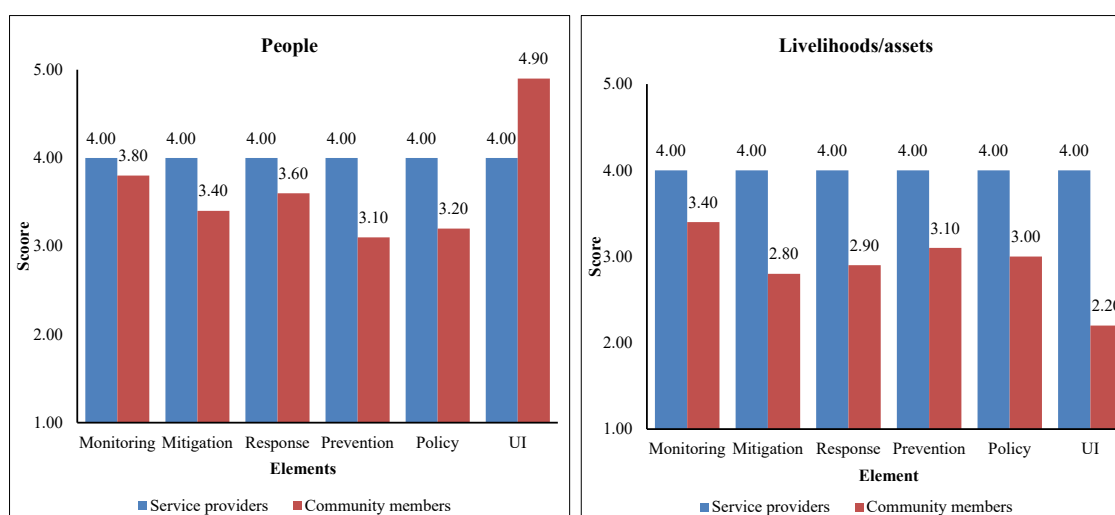


Figure 21: Score against each Element of the Outcome (people and livelihoods/assets) for Bitekha-Jagoen chiwog

In Bitekha-Jagoen chiwog, the assessment reveals systemic weaknesses across several strategic elements. Specifically, prevention and policy recorded the lowest scores under the people outcome, while UI was lowest within the livelihoods/assets outcome, indicating limited emphasis on proactive risk reduction and insufficient integration of community knowledge into livelihood protection strategies.

Under the wildlife outcome, mitigation emerged as the weakest element, suggesting gaps in the effectiveness, coverage or sustainability of measures aimed at reducing wildlife-related impacts. In addition, the monitoring element scored lowest under the habitat outcome, pointing to inadequate ecological surveillance, data collection and feedback mechanisms to inform adaptive management. Collectively, these deficiencies highlight the need for a more coordinated and forward-looking strategy that strengthens preventive

frameworks, evidence-based decision-making and cross-sectoral policy alignment to support long-term human-wildlife coexistence.

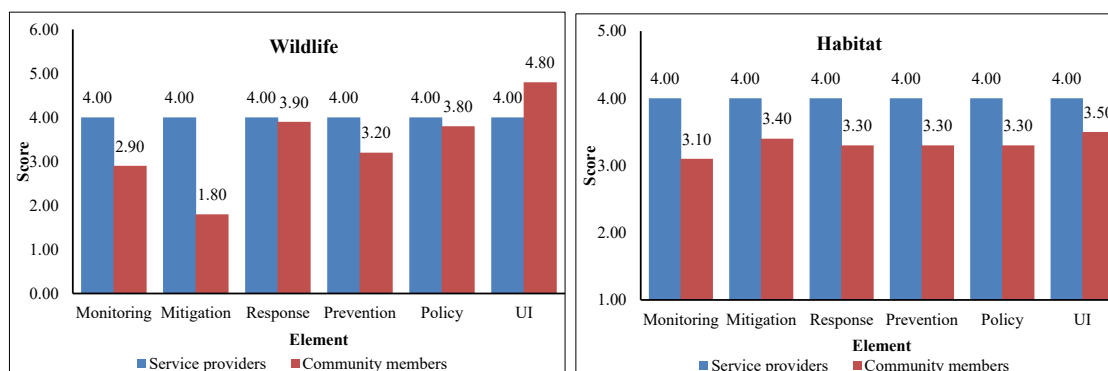


Figure 22: Score against each Element of the Outcome (people and livelihoods/assets) for Bitekha-Jagoen chiwog

4.3.4 Bhempfu-Lingzhi-Nagu Chiwog

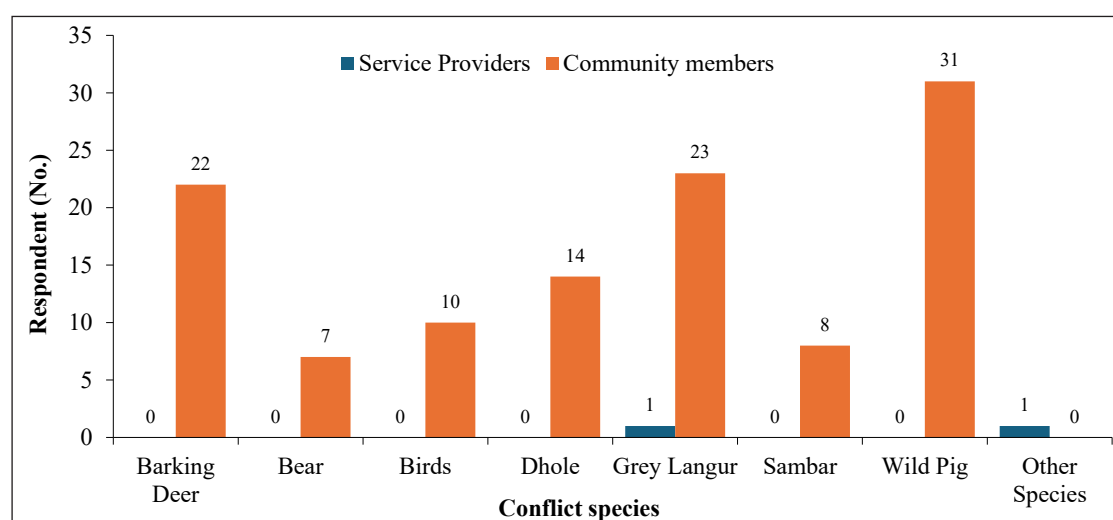


Figure 23: Conflict Species identified for Bhempfu-Lingzhi-Nagu chiwog

The majority of community respondents identified wild pig, grey langur, barking deer and dhole as the principal drivers of HWC within the chiwog, reflecting their frequent and direct exposure to crop damage, livestock depredation and associated livelihood risks. In contrast, service providers and duty bearers predominantly recognized grey langur along with a limited set of other species as the sole sources of conflict, indicating a substantially narrower institutional assessment of conflict dynamics. This divergence in species prioritization underscores a misalignment between lived community experiences and formal reporting or management frameworks, highlighting the need for strategy development processes that integrate community-based knowledge systems with institutional assessments to ensure a more comprehensive, evidence-informed and context-responsive approach to conflict prevention and mitigation.

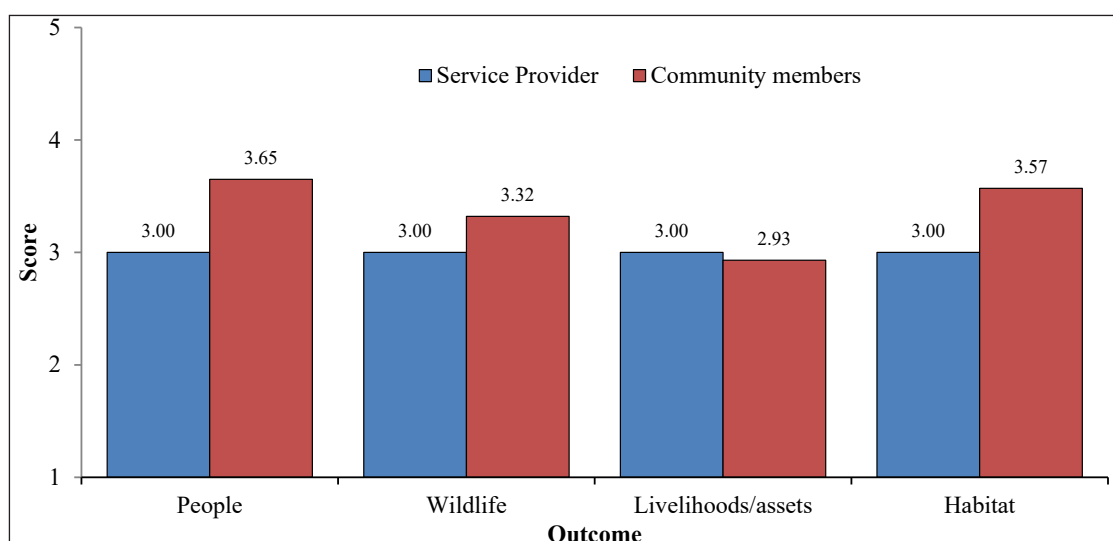


Figure 24: Result by Outcome for Bhempfu-Lingzhi-Nagu chiwog

Community members ranked the Livelihoods/Assets outcome lowest, indicating that HWC imposes a disproportionate impact on household economies, agricultural output and physical infrastructure. This assessment reflects a community-level emphasis on immediate and material losses, particularly crop damage, livestock depredation and property destruction, that directly undermine subsistence livelihoods and economic resilience. In contrast, Service Providers/Duty Bearers assigned comparable ratings across all outcome categories, reflecting an institutional framing in which people, habitat, livelihoods/assets and wildlife outcomes are regarded as equally significant and mutually interdependent.

The C2C strategic interventions should prioritize Livelihoods/Assets oriented measures that reduce crop damage, livestock losses and property destruction to enhance household economic resilience and subsistence security. Concurrently, these measures should be implemented within an integrated, multi-outcome framework that accords balanced consideration to people, habitat, and wildlife dimensions. Such a combined approach strengthens community responsiveness while ensuring systemic coherence in advancing sustainable human-wildlife coexistence.

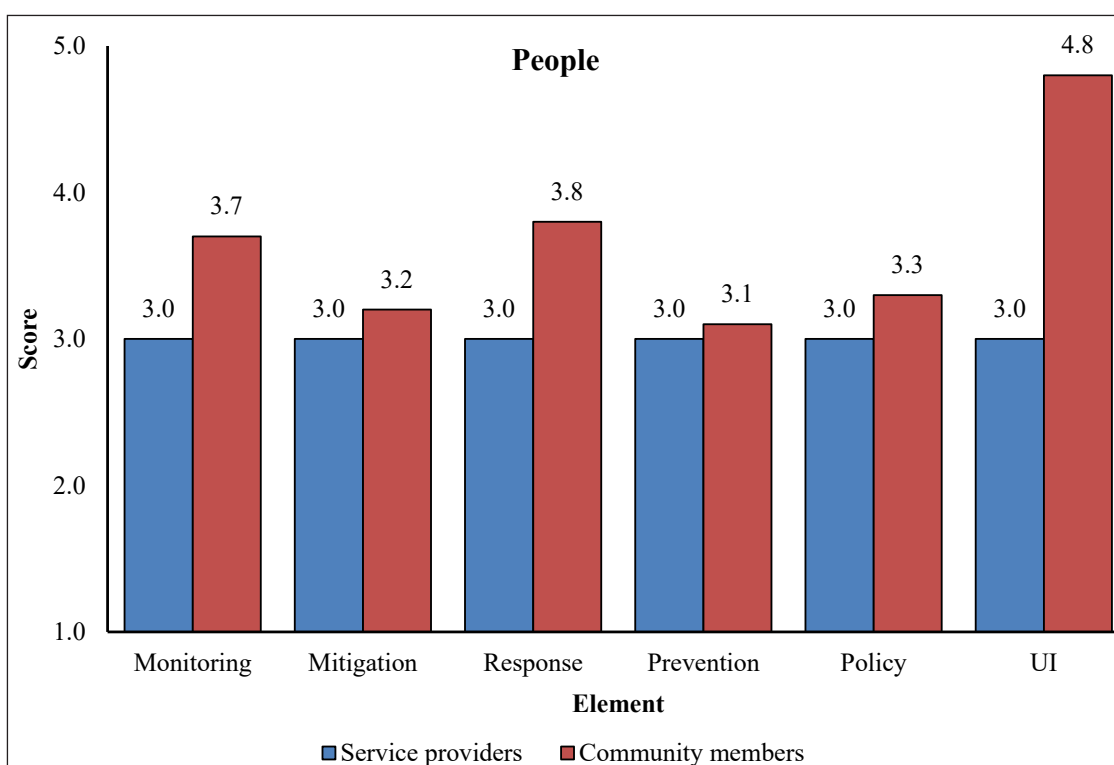


Figure 25: Score against each Element of the Outcome (people) for Bhempu-Lingzhi-Nagu chiwog

For Bhempu-Lingzhi-Nagu chiwog, assessment results indicate notable gaps across multiple outcome domains. Prevention received the lowest scores under the people outcome, suggesting limited emphasis on proactive measures such as community awareness, capacity building, early-warning systems and anticipatory planning to reduce human-wildlife interactions before conflicts occur.

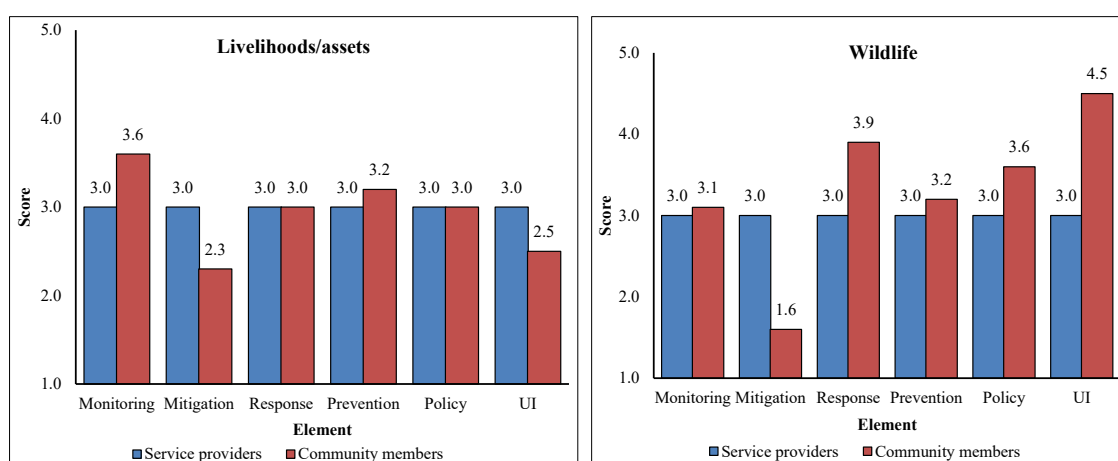


Figure 26: Score against each Element of the Outcome (livelihoods/assets and wildlife) for Bhempu-Lingzhi-Nagu chiwog

Under the livelihoods/assets as well as wildlife outcomes, mitigation was the weakest-performing element, indicating an overreliance on short-term or ad hoc responses and insufficient effectiveness of existing measures to reduce economic losses, safeguard livelihoods, and minimize harm to wildlife.

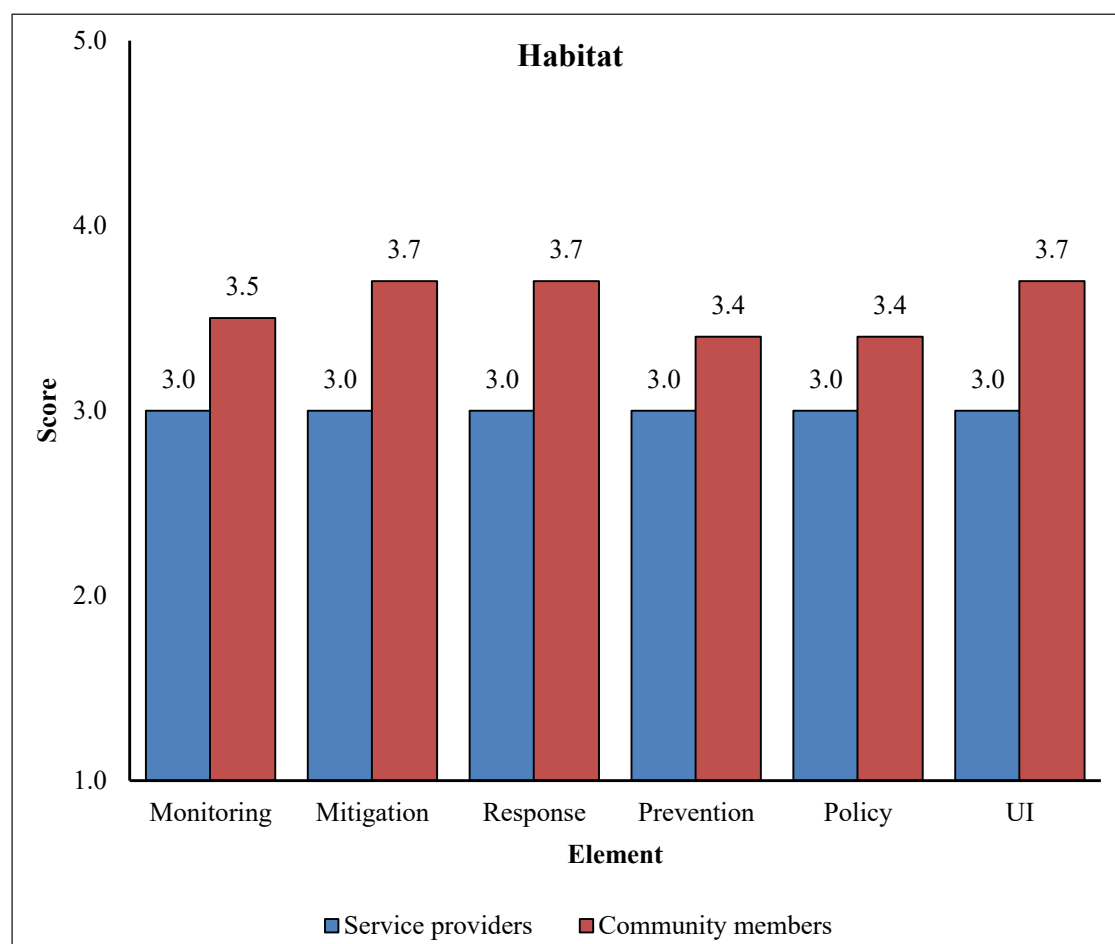


Figure 27: Score against each Element of the Outcome (habitat) for Bhempfu-Lingzhi-Nagu chiwog

Under the habitat outcome, the elements of prevention and policy received the lowest scores, reflecting critical deficiencies in proactive and regulatory measures. This underscores shortcomings in strategic land-use planning, such as zoning or buffer establishment as well as inadequate habitat management practices to maintain ecological integrity and reduce HWC. Moreover, the low policy scores indicate gaps in the formulation, implementation and enforcement of relevant regulations and guidelines, suggesting that existing policy frameworks are either insufficiently applied or lack the necessary mechanisms to support effective conservation and conflict prevention. These findings point to an urgent need for strengthening both preventive ecological interventions and policy instruments to ensure sustainable habitat management and resilient human-wildlife coexistence.

4.3.5 Rashigang-Tshegoen Chiwog

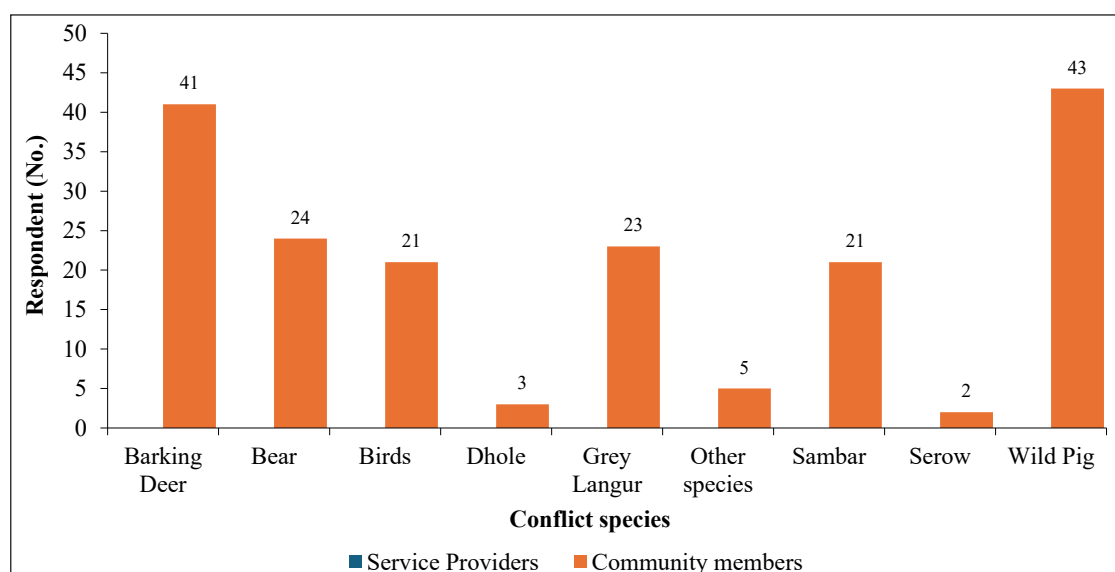


Figure 28: Conflict Species identified for Rashigang-Tshegoen chiwog

Consistent with observations in other Chiwogs, the community of Rashigang-Tshegoen chiwog has identified a range of species that contribute significantly to HWC. The primary species reported include barking deer, wild pig, bear, grey langur, bird species and sambar (Figure 28). These species are identified as recurrent sources of crop damage, property loss or potential threats to human safety. The alignment of these findings with patterns observed in neighboring chiwogs underscores the widespread nature of conflict with these particular wildlife species and highlights the necessity for targeted, species-specific management strategies, integrating both preventive and mitigative measures to reduce negative interactions while promoting coexistence.

In Rashigang-Tshegoen chiwog, community members have ranked livelihoods/assets outcome received the lowest score among all assessed outcome categories (Figure 29). This indicates that the community perceives significant vulnerability in terms of their economic stability, access to resources and protection of critical assets in the context of human-wildlife interactions. The low rating underscores the need for targeted strategic interventions aimed at strengthening livelihood resilience, safeguarding productive assets and enhancing adaptive capacity.

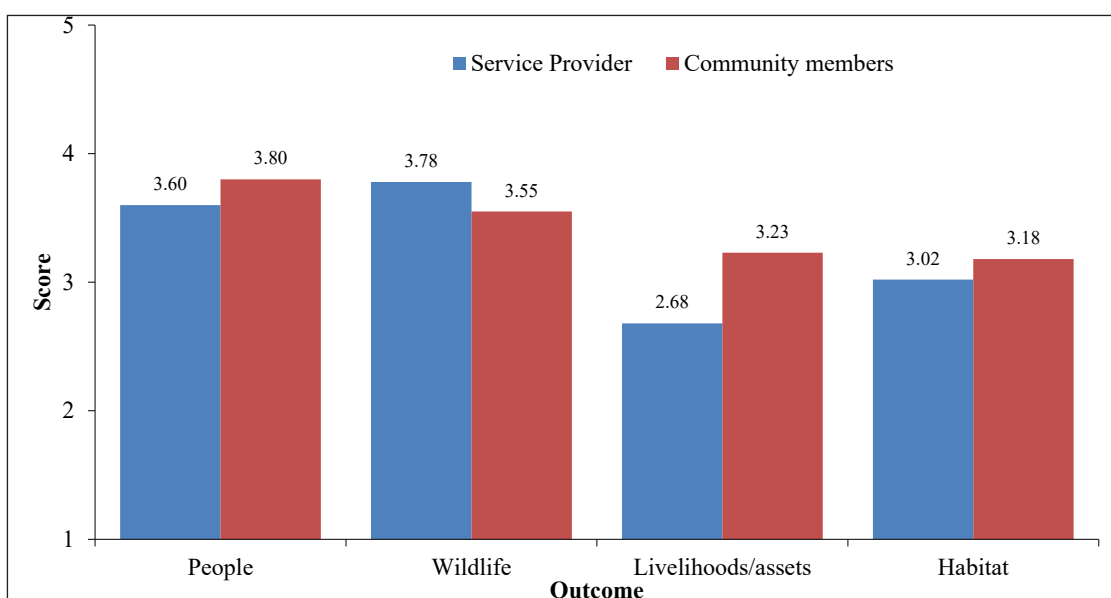


Figure 29: Result by Outcome for Rashigang-Tshegoen chiwog

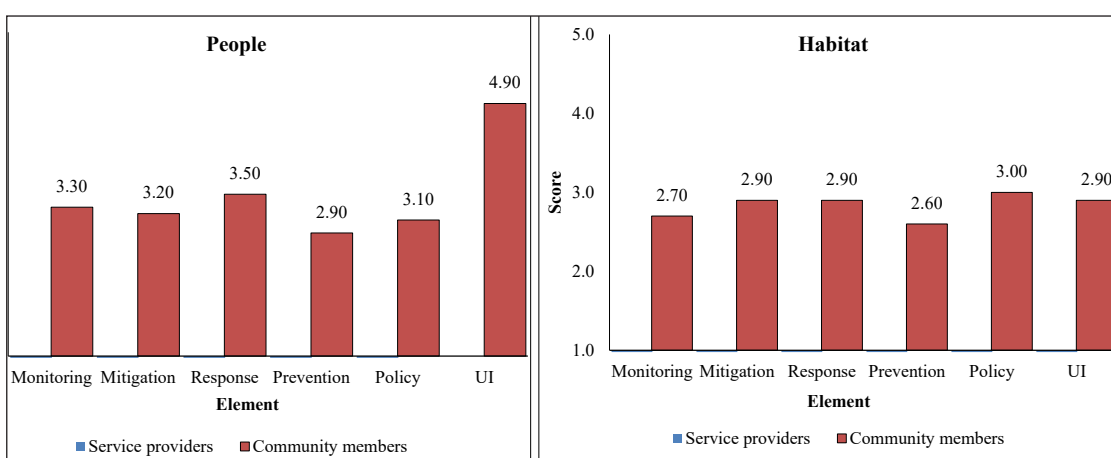


Figure 30: Score against each Element of the Outcome (people and habitat) for Rashigang-Tshegoen chiwog

The assessment highlighted significant disparities in the effectiveness of different HWC management elements across the key outcome categories. In particular, Prevention received the lowest scores under the people and habitat outcomes, suggesting that proactive measures are currently underemphasized. This indicates limited implementation of strategies such as targeted awareness programs, early-warning systems, land-use planning and habitat management, all of which are critical for anticipating and minimizing potential conflicts before it arises. The low scores reflect gaps in both planning and community engagement, which may reduce the overall capacity to prevent incidents and safeguard human well-being and ecological integrity simultaneously.

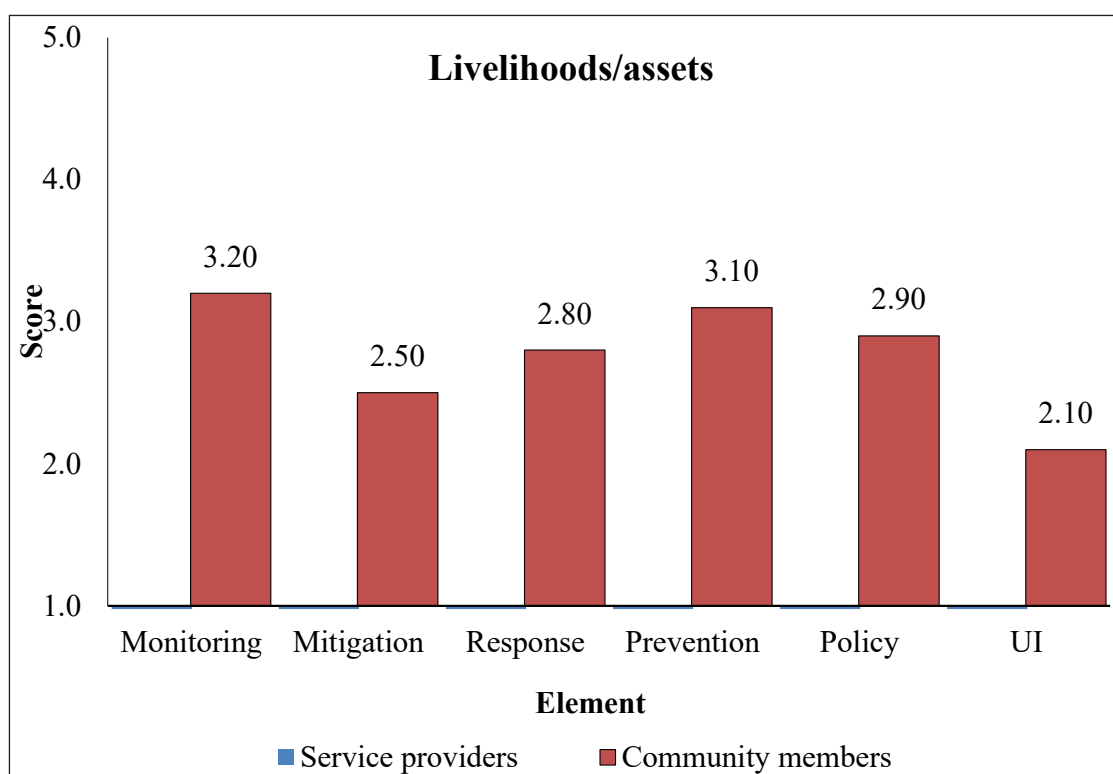


Figure 31: Score against each Element of the Outcome (livelihoods/assets) for Rashigang-Tshegoen chiwog

Within the livelihoods/assets category, understanding of interaction emerged as the weakest element, indicating that community members may possess limited knowledge or awareness of wildlife behavior, movement patterns and the various risk factors that drive HWC incidents. This gap in understanding can reduce the effectiveness of measures aimed at safeguarding livelihoods such as crop protection, livestock management or property safeguarding and may inadvertently increase the vulnerability of communities to recurring conflict events. Strengthening UI through targeted education, participatory monitoring, and experiential learning could therefore play a critical role in enhancing community capacity to anticipate, respond to and minimize the negative impacts of wildlife interactions on their assets and well-being.

Within the wildlife outcome category, mitigation received the lowest rating, reflecting notable deficiencies in the strategies and measures implemented to reduce the negative impacts of HWC on both wildlife and human interests. This low score suggests that existing interventions, such as non-lethal deterrents, timely response mechanisms and adaptive management practices are either insufficiently applied, poorly targeted or inadequately monitored. Consequently, opportunities to effectively minimize harm to wildlife populations while simultaneously protecting crops, livestock and property remain limited, underscoring the need for more robust, evidence-based mitigation frameworks that can respond efficiently to conflict incidents as they occur.

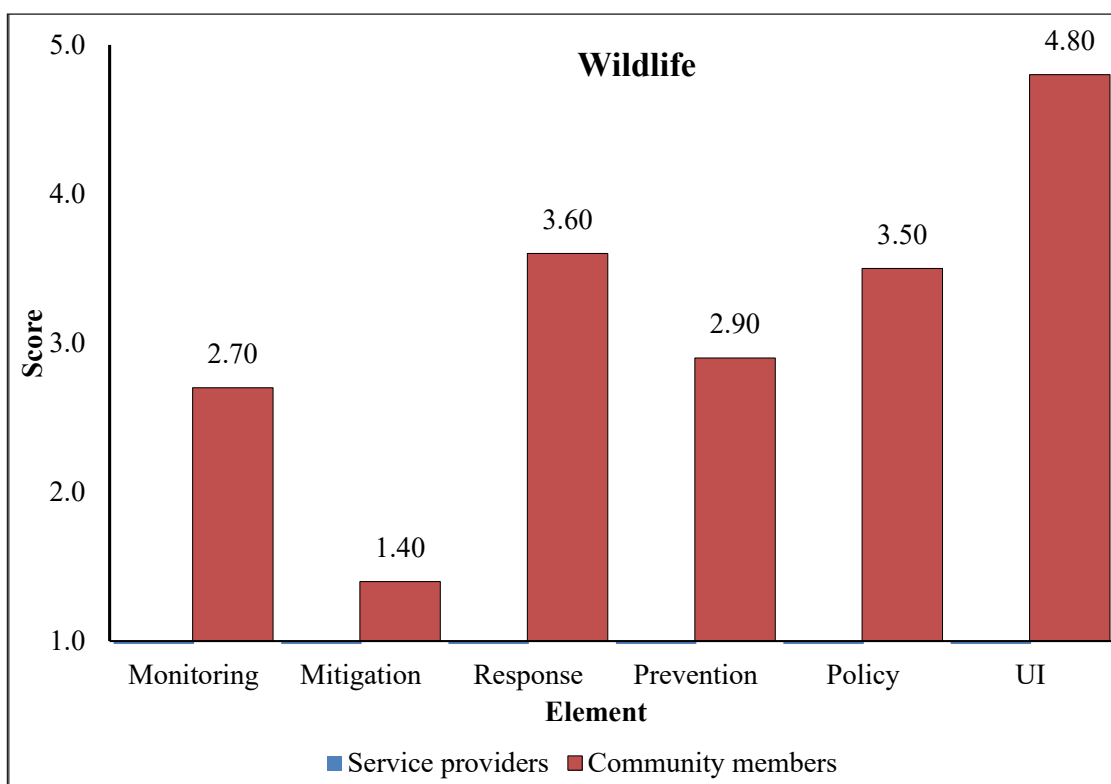


Figure 32: Score against each Element of the Outcome (wildlife) for Rashigang-Tshegoen chiwog

These findings underscore the critical need for a comprehensively integrated strategy that simultaneously addresses the multiple dimensions of HWC management. Strengthening preventive measures is essential to anticipate and reduce potential conflicts before they occur, while enhancing community understanding of human-wildlife interactions will empower local communities with the knowledge and skills necessary to manage risks effectively. At the same time, improving mitigation practices ensures that both human interests and wildlife are safeguarded when conflicts arise.

5. Conflict to Coexistence (C2C) Strategy

The C2C strategies for Naja gewog were designed to shift the paradigm of HWC from confrontation to coexistence by tackling its underlying drivers, strengthening community adaptive capacity and institutionalizing sustainable conservation agriculture and landscape management practices. Grounded in insights from assessment findings, participatory stakeholder consultation on co-designing processes, the strategy emphasizes evidence-based interventions targeting the most conflict-prone area and species identified by local communities and service providers/duty bearers. These priority species include barking deer, bear, macaques, birds, langurs, wild pig, dhole, tiger and sambar among other species that pose significant challenges to livelihoods and ecosystem balance.

Interventions are prioritized on the safeguarding community livelihoods or assets through integrated measures that will enhance crop protection systems hence, improving the crop production. Further, the interventions will strengthen sustainable livestock management and diversifying income generation through alternative livelihood opportunities. Central to these approaches are active community engagement with tailored programs that empower local stakeholder in managing human-wildlife interactions and implementing stewardship initiatives. Mitigation and prevention strategies will combine structural and non-structural solutions including installation of physical barriers such as live-fencing, electric fencing and chain-link fencing. In addition, the deployment of early warning system, initiation and enhancement of rapid response systems, adoption of nature-based solutions, wildlife resilient agricultural and livestock practices will be initiated and adopted to minimize crop and livestock losses.

Policy mainstreaming will ensure that wildlife conservation and conflict resolution mechanisms are embedded within local and national frameworks, supported by clear enforcement protocols. Continuous ecological monitoring will assess wildlife population dynamics, habitat conditions and intervention effectiveness, providing an evidence-based for adaptive management. Habitat restoration and land-use planning will reduce spatial overlap between human settlements and wildlife, thereby decreasing conflict risk. Multi-stakeholder collaboration, encompassing local communities, service providers/duty bearers will be established to sustain long-term outcomes. This adaptive ecosystem-based and participatory framework seeks to establish harmonious coexistence between people and wildlife, promoting ecological integrity while enhancing socio-economic resilience and community well-being.

The section outlines the strategic recommendations formulated to address the HWC challenges faced by the local communities of five chiwogs under Naja gewog. The strategy is organized around two overarching objectives, supported by four core strategies and 27 specific actions. Among these actions, 21 actions are prioritized as short-term initiatives, while remaining six are identified as long-term interventions aimed at sustaining coexistence efforts.

The total projected financial outlay for the five-year (2026-2030) C2C Strategy for Naja Gewog under Paro Dzongkhag is estimated at Nu. 32.49 million. The funding is anticipated to be mobilized the Royal Government of Bhutan (RGoB), the ongoing IKI Project and potential donors.

Table 5: Implementation Plan and Financial Outlay

Outcome	Actions/Activities	Location	Category	Responsibility		Budget estimate (Nu. In million)	Potential funding source	Timeline
				Lead	Collaborator			
1. People-able and willing to live alongside wildlife	1.1. Conduct community outreach programs to raise awareness and promote education on human-wildlife conflict mitigation and coexistence.	Bhemphu-Lingzhi-Nagu and Rashigang-Tshegoen	Short term	Bitekha FMU and Haa-East FMU	DFO-Paro and Naja Gewog	0.175	RGoB and other potential donors	2027-2028
	1.2. Enhance community capacity through awareness programs on existing forest rules and regulations.	All Chiwogs	Short term	Bitekha FMU Office	DFO-Paro and Naja Gewog	0.250	RGoB and other potential donors	2028-2029
	1.3. Strengthen community resilience and adaptive capacity through training programs on forest fire prevention, preparedness and management.	All Chiwogs	Short term	Bitekha FMU Office	DFO-Paro and Naja Gewog	0.240	RGoB and other potential donors (BFL)	2026-2027
	1.4. Promote community awareness and responsibility on sustainable waste management practices.	All Chiwogs	Short term	Bitekha FMU Office	DFO-Paro and Naja Gewog	0.125	RGoB and other potential donors	2026-2027
	1.5. Establish and strengthen conflict management groups (QRT) to engage local communities in wildlife monitoring, conflict reporting and implementation of mitigation measures.	All Chiwogs	Short term	DFO, Paro	Bitekha FMU, Haa-East FMU offices and Naja Gewog	0.250	RGoB and other potential donors	2028-2029
	1.6. Ensure and provide appropriate safety gears to forestry officials and QRT members to enhance occupational safety, operational efficiency and preparedness during field operations and emergency interventions.	All Chiwogs	Short term	DFO, Paro	DoFPS, Bitekha FMU Office and Naja Gewog	1.670	RGoB and other potential donors	2026-2028
	1.7. Facilitate community exchange visits within the country to promote peer learning and strengthen local capacity.	Bhemphu-Lingzhi-Nagu	Short term	Bitekha FMU and Haa-East FMU	DFO, Paro	0.730	RGoB and other potential donors	2026-2028

2. Livelihoods/ assets -secured against the presence of wildlife	2.1. Provide a durable chain-link perimeter fencing integrated with an electrified top barrier on a cost sharing basis.	Bitekha-Jajoen	Long term	DF0, Paro and Tarayana Foundation	Agriculture Sector	6.525	RGoB and other potential donors (Tarayana)	2027-2030
	2.2. Supply artificial insemination equipment and materials to promote high quality breed enhancement and improved livestock productivity.	Rashigang-Tshegoen Jazhina-Tsuengoen	Short term	Bitekha FMU Office	Livestock Sector	0.450	RGoB and other potential donors	2027-2028
	2.3. Facilitate the development and maintenance of irrigation systems and safe drinking water infrastructure to ensure sustainable agricultural productivity and community health.	Tshuendu Goenpa	Long term	DF0, Paro	Department of Agriculture, Naja Gewog	5.250	RGoB and other potential donors	2027-2030
	2.4. Promote and provide assistance for commercial mushroom cultivation, including access to training, quality spawn and modern farming techniques.	Betikha-Jajoen & Rashigang-Tsegoen/ Zursuna-Wanakha, Tokha	Short term	Bitekha FMU Office	DF0-Paro, National Mushroom Centre and Naja Gewog	0.950	RGoB and other potential donors	2027-2029
	2.5. Support establishment of marketing shed along the highway to facilitate efficient sale of agricultural and dairy products.	Zursuna-Wanakha	Long term	DF0, Paro	Dzongkhag Administration, Agriculture and Livestock Sector, Naja Gewog	1.650	RGoB and other potential donors	2028-2030
	2.6. Provide mini tillers to promote mechanized farming practices thereby reducing reliance on draft cattle and for enhancing and improving agricultural productivity.	Rashigang-Tsegoen/ Tshebji	Long term	DF0, Paro	DoFPS, Agriculture Sector and Naja Gewog	3.550	RGoB and other potential donors	2027-2030
	2.7. Implement cost-shared construction of improved cattle sheds to minimize free-range herding and reduce cattle predation by wild animals.	Bhemphu-Lingzhi-Nagu	Long term	DF0, Paro	Livestock Sector, Naja Gewog and DF0-Paro	2.850	RGoB and other potential donors	2027-2030
	2.8. Promote the adoption of crop varieties less attractive to wildlife and the integration of wildlife-friendly agricultural practices.	Zursuna-Wanakha	Short term	Bitekha FMU Office	Agriculture Sector, Naja Gewog and DF0-Paro	0.350	RGoB and other potential donors	2027-2028

	2.9. Provide green shade nets for vegetable cultivation to enhance crop protection, optimize growing conditions, and improve yield and quality.	All Chiwogs	Short term	Bitekha FMU Office	Agriculture Sector, Naja Gewog and DFO-Paro	1.200	RGoB and other potential donors	2026-2028
	2.10. Facilitate the provision of eco-friendly pesticides and weedicides to enhance crop health and minimize pest and disease-induced losses.	Bhemphu-Lingzhi-Nagu and Rashigang-Tshegoen	Short term	Bitekha FMU Office	Agriculture Sector, Naja Gewog and DFO-Paro	0.250	RGoB and other potential donors	2026-2028
	2.11. Provide pasture seeds and fodder materials to support pasture development and sustainable livestock feeding.	Bhemphu-Lingzhi-Nagu/Tshendu goenpa	Short term	Bitekha FMU Office	Agriculture and Livestock Sector, Naja Gewog and DFO-Paro	0.350	RGoB and other potential donors	2027-2029
	2.12. Facilitate the provision of greenhouse construction materials to interested farmers through cost-sharing or subsidy support.	Bhemphu-Lingzhi-Nagu, Jazhina-Tsuengoen and Rashigang-Tshegoen	Short term	Bitekha FMU Office	Agriculture Sector, Naja Gewog and DFO-Paro	2.575	RGoB and other potential donors	2026-2028
	2.13. Promote and support the use of innovative wildlife deterrent technologies such as sensor lights and acoustic devices to reduce human-wildlife conflict.	Lingzhi, Tshoengoen and Tsibji	Short term	Bitekha FMU Office	DFO-Paro and Naja Gewog	0.450	RGoB and other potential donors	2027-2029
3. Wildlife-thrives alongside people	3.1. Organize a school-based biodiversity events to promote human-wildlife coexistence through interactive awareness activities, art competition and educational exhibitions aligned with the theme "Wildlife Thrives Alongside People".	Bitekha-Jajoen	Short term	Bitekha FMU Office	Bitekha School, DFO-Paro and Naja Gewog	0.315	RGoB and other potential donors	2026-2028
	3.2. Implement systematic wildlife population monitoring through the deployment of camera traps and drone-based surveys to assess movement patterns and population dynamics.	All Chiwogs	Short term	DFO, Paro	DoFPS, Bitekha FMU, Haa-East FMU offices and Naja Gewog	0.350	RGoB and other potential donors	2027-2029

	3.3. Undertake comprehensive field studies on key conflict species such as wild pigs, wild dogs, Asiatic black bear and other ungulates to inform evidence-based population management strategies.	All Chiwogs	Short term	DFO, Paro	DoFPS, Bitekha FMU, Haa-East FMU offices and Naja Gewog	0.295	RGoB and other potential donors	2026-2028
	3.4. Strengthen field surveillance through the implementation of SMART patrolling and intensified patrol operations	All Chiwogs	Short term	DFO, Paro	Bitekha FMU and Haa-East FMU Offices	0.450	RGoB and other potential donors (BFL)	2026-2028
4. Habitat-sufficient to ensure sustainable wildlife population	4.1. Enhance wildlife habitats through the plantation of native palatable grasses and wild fruit tree species native to the local areas.	All chiwogs	Long term	DFO, Paro	Agriculture Sector, Naja Gewog, Bitekha FMU and Haa-East FMU Offices	0.650	RGoB and other potential donors	2028-2030
	4.2. Organize training programs to enhance community and stakeholder ability to restore degraded habitats.	All Chiwogs	Short term	Bitekha FMU Office	DoFPS, DFO-Paro and Naja Gewog	0.320	RGoB and other potential donors	2026-2028
	4.3. Improve and maintain existing natural waterholes in water-scarce areas to ensure adequate water availability for wildlife.	All Chiwogs	Short term	Bitekha FMU Office	Naja Gewog and DFO, Paro	0.270	RGoB and other potential donors	2026-2028
Total estimated cost (Nu. in million)						32.490		

6. Monitoring and Evaluation

Timely monitoring and evaluation of planned programs are critical to ensuring the effective delivery of intended outcomes. This section outlines the approach to monitoring and evaluating the implementation of the actions. A comprehensive Monitoring and Evaluation (M&E) plan was developed to align seamlessly with the implementation framework. The action will include specific indicators to measure the performance, providing a clear basis for assessing progress. Output indicators will primarily track the achievements of the identified actions, ensuring accountability and fostering continuous improvement throughout the implementation process.

6.1 Monitoring

Monitoring is an ongoing assessment process aimed at providing stakeholders with timely and detailed updates on the progress or delays of activities, ensuring transparency and clarity regarding their implementation status. For the 5-year plan, the DFO, Paro will conduct annual monitoring to evaluate progress, identify challenges, and ensure that the planned actions are on track to achieve the intended outcomes.

6.2 Evaluation

The evaluation of the plan will take place twice during the plan period to ensure its effectiveness and alignment with objectives. A midterm review will be conducted in the last quarter of the second year, followed by a final review in the last quarter of the fifth year. These evaluations will be carried out by a combined team of internal members from DFO, Paro and external representatives, including members from functional divisions, DoFPS, ensuring a comprehensive and impartial assessment of the plan's implementation and outcomes.

Table 6: Monitoring and Evaluation Framework

Outcome	Actions/Activities	Action Indicator	Baseline	Unit	Yearly Target				
					I (2026)	II (2027)	III (2028)	IV (2029)	V (2030)
1. People- able and willing to live alongside wildlife	1.1. Conduct community outreach programs to raise awareness and promote education on human-wildlife conflict mitigation and coexistence.	Number of community outreach and educational programs conducted and report produced.	2	Report	1	1	0	0	0
	1.2. Enhance community capacity through awareness programs on existing forest rules and regulations.	Number of community awareness programs conducted.	1	Report	1	1	0	0	0
	1.3. Strengthen community resilience and adaptive capacity through training programs on forest fire prevention, preparedness and management.	Number of community members trained in forest fire prevention, preparedness, and management.	0	Number	50	50	0	0	0
	1.4. Promote community awareness and responsibility on sustainable waste management practices.	Number of community awareness sessions conducted.	2	Report	1	1	0	0	0
	1.5. Establish and strengthen conflict management groups (QRT) to engage local communities in wildlife monitoring, conflict reporting and implementation of mitigation measures.	Number of community-based Quick Response Teams (QRTs) strengthened.	2	Report	0	1	1	0	0
	1.6. Ensure and provide appropriate safety gears to forestry officials and QRT members to enhance occupational safety, operational efficiency and preparedness during field operations and emergency interventions.	Number of forestry officials and QRT members equipped with appropriate safety gear.	0	Number	0	10	10	0	0
	1.7. Facilitate community exchange visits within the country to promote peer learning and strengthen local capacity.	Number of community members got exposure tours	22	Number	0	25	25	0	0
2. Livelihoods/ assets -secured against the presence of wildlife	2.1. Provide a durable chain-link perimeter fencing integrated with an electrified top barrier on a cost sharing basis.	Length of chain-link fencing integrated with an electrified top barrier installed.	5	km	0	8.5	8.5	8.5	0
	2.2. Supply artificial insemination equipment and materials to promote high quality breed enhancement and improved livestock productivity.	Number of artificial insemination kits and materials supplied.	0	Number	0	10	10	0	0

2.3. Facilitate the development and maintenance of irrigation systems and safe drinking water infrastructure to ensure sustainable agricultural productivity and community health.	Number of irrigation systems and safe drinking water infrastructures developed or maintained.	0	Number	0	1	1	1	0
2.4. Promote and provide assistance for commercial mushroom cultivation, including access to training, quality spawn and modern farming techniques.	Number of local communities trained and supported with quality spawn and modern mushroom cultivation techniques.	0	Number	0	5	5	0	0
2.5. Support establishment of marketing shed along the highway to facilitate efficient sale of agricultural and dairy products.	Number marketing sheds established along highway for the sale of agricultural and dairy products.	1	Number	0	0	1	1	0
2.6. Provide mini tillers on cost-sharing basis to promote mechanized farming practices thereby reducing reliance on draft cattle and for enhancing and improving agricultural productivity.	Number of local communities supported with mini tillers and adopting mechanized farming practices.	0	Number	0	0	5	5	0
2.7. Implement cost-shared construction of improved cattle sheds to minimize free-range herding and reduce cattle predation by wild animals.	Number of improved cattle sheds constructed under cost-sharing.	0	Number	0	0	5	3	2
2.8. Promote the adoption of crop varieties less attractive to wildlife and the integration of wildlife-friendly agricultural practices.	Number of households supported with initiation and adoption of crop varieties	15	Number	0	6	10	0	0
2.9. Provide green shade nets for vegetable cultivation to enhance crop protection, optimize growing conditions, improve yield and quality.	Number of green shade nets distributed to No. o HHs for vegetable cultivation.	5	Number	25	25	0	0	0
2.10. Facilitate the provision of eco-friendly pesticides and weedicides to enhance crop health and minimize pest and disease-induced losses.	Volume of pesticides and herbicides distributed for managing crop pest and disease damage.	5	Ltrs/kg	15	15	0	0	0
2.11. Provide pasture seeds and fodder materials to support pasture development and sustainable livestock feeding.	Volume of pasture seeds and fodder materials supported to the households.	0	kg	0	35	35	0	0

	2.12. Facilitate the provision of greenhouse construction materials to interested farmers through cost-sharing or subsidy support.	Number of local communities supported with greenhouse materials through cost-sharing or subsidy support.	8	Number	5	5	5	0	0
	2.13. Promote and support the use of innovative wildlife deterrent technologies such as sensor lights and acoustic devices to reduce human-wildlife conflict.	Quantity of acoustic devices and sensor lights supported to the local communities.	0	Set	0	0	10	10	0
3. Wildlife-thrives alongside people	3.1. Organize a school-based biodiversity events to promote human-wildlife coexistence through interactive awareness activities, art competition and educational exhibitions aligned with the theme “Wildlife Thrives Alongside People”.	Number of school-based biodiversity events conducted.	0	Number	1	1	0	0	0
	3.2. Implement systematic wildlife population monitoring through the deployment of camera traps to assess movement patterns and population dynamics.	Number of wildlife monitoring surveys conducted and data collected using camera traps.	1	Report	1	0	1	0	0
	3.3. Undertake comprehensive field studies on key conflict species such as wild pigs, wild dogs, Asiatic black bear and other ungulates to inform evidence-based population management strategies.	Number of comprehensive field studies conducted on one of the key conflict species.	1	Report	1	0	1	0	0
	3.4. Strengthen field surveillance through the implementation of SMART patrolling and intensified patrol operations	Number SMART patrol conducted.	3	Report	1	1	1	0	0
4. Habitat-sufficient to ensure sustainable wildlife population	4.1. Enhance wildlife habitats through the plantation of native palatable grasses and wild fruit tree species native to the local areas.	Acres of wildlife habitat improved through the plantation programs.	0	Acres	0	0	5	5	5
	4.2. Organize training programs to enhance community and stakeholder ability to restore degraded habitats.	Number of community members and stakeholders trained in habitat restoration techniques.	0	Number	25	25	25	0	0
	4.3. Improve and maintain existing natural waterholes in water-scarce areas to ensure adequate water availability for wildlife.	Number of waterholes improved and maintained.	0	Number	10	10	10	0	0

7. Conclusion

The C2C strategy for Naja Gewog constitutes a comprehensive and community-oriented framework designed to mitigate HWC and promote harmonious coexistence between local communities and wildlife. Formulated through extensive stakeholder consultations, participatory HWC assessments and co-design workshops, the strategy is structured around four strategic outcomes; People, Livelihoods/Assets, Wildlife and Habitat, integrating six interrelated elements; Policy, Prevention, Response, Understanding the Interaction, Mitigation and Monitoring.

The C2C strategy prioritizes the preservation of adequate habitats to sustain wildlife populations, safeguarding of community livelihoods/assets and the cultivation of coexistence through capacity development, environmental stewardship and active community participation. By embedding a nuanced understanding of the conflicts into its design, the strategy ensures that interventions are both contextually relevant and operationally effective.

Successful implementation will require concerted collaboration among local communities, government agencies, conservation organizations and allied stakeholders, supported by adaptive management practices, rigorous monitoring mechanisms and sustained public engagement. With the full commitment and ownership of the Naja community, the C2C strategy is poised to enhance ecological resilience, secure socio-economic stability and establish the Gewog as an exemplar of sustainable human-wildlife coexistence. Through enduring partnership, innovation and collective responsibility, Naja Gewog can realize a balanced and mutually beneficial future for both human and wildlife populations.

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