Human-Wildlife Conflict Management

Conflict to Coexistence (C2C) Strategy for **Dogar 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

%	Percentage
AI	Artificial Insemination
BES	Bhutan Ecological Society
BHU	Basic Health Unit
BTFEC	Bhutan Trust Fund for Environmental Conservation
C2C	Conflict to Coexistence
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 Initiative
M&E	Monitoring and Evaluation
NCD	Nature Conservation Division
NFE	Non-Formal Education
NGOs	Non-Governmental Organizations
NWFPs	Non-wood 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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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 Dogar 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 Dogar 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 Dogar 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 Dogar gewog is the result of a collective and dedicated effort by the staff of the DFO, Paro in close collaboration with the Dogar Gewog Administration. The Division sincerely acknowledges the commitment, professionalism and teamwork demonstrated by all officers, and staffs 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 Dogar Gewog Administration. The DFO, Paro is deeply grateful for their strategic direction, technical advice and continued 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 the timely procurement of essential equipment, 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 from 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 the individuals, institutions and stakeholder 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 Dogar gewog in the years to come.

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1. Introduction

The HWC is a significant global challenge that occurs when wildlife presence or behavior poses actual or perceived threats to human safety, livelihoods, or interests, often in areas where human and wildlife habitats overlap, impacting both parties (FAO, 2021; Conover, 2002). Although humans and wildlife have coexisted for centuries, increasing human population growth, developmental pressures, habitat loss and fragmentation have heightened the frequency and intensity of these conflicts (Kiogora & Gathoni, 2021). HWC commonly manifests as crop raiding, livestock depredation, property damage, and human casualties, which disrupt rural livelihoods and exacerbate poverty (World Bank, 2023; Tobgay et al., 2019). In turn, retaliatory actions by humans often threaten already vulnerable wildlife populations, further complicating conservation efforts.

Bhutan, situated within the Eastern Himalayas, one of the world's biodiversity hotspots, illustrates the complexity of HWC. With 69.71% of its land under forest cover and more than 50% designated as protected areas, the country harbors globally threatened species such as tiger, snow leopard, clouded leopard and Asian elephant (FMID, 2023; Letro et al., 2021, NCD, 2018). At the same time, approximately 60% of the Bhutanese population resides in rural areas and depends heavily on agriculture and livestock for subsistence (RGoB, 2017). Similarly, Dogar gewog is 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).

As per the socio-economic and HWC report of DFO at Paro, 94% of respondents reported conflicts with wild animals, with crop depredation being the most common issue, followed by livestock depredation. Over the past three years (2020-2022), a total of Nu. 28.35 million worth of crops were lost to wild animals across the Gewogs. Naja Gewog experienced the highest average annual crop loss, amounting to Nu. 27,960 per household followed by Dogar gewog, while Lungnyi gewog had the lowest at Nu. 4,450. Wild pig was identified as the primary crop predators.

To address such challenges, integrated and adaptive approaches are increasingly emphasized worldwide. The C2C approach, developed in 2023 as a revision of the Safe Systems Approach (SSA), provides a structured, seven-step methodology to guide systematic HWC management (WWF, 2023). Building on lessons from SSA, which faced challenges in rapid assessments and implementation, the C2C model emphasizes co-design with communities and stakeholders to ensure inclusive and context-specific solutions. Through collaboration, adaptive management and innovative solutions, the C2C framework strives to reconcile biodiversity conservation with the protection of rural livelihoods, offering a strategic pathway toward enduring coexistence within shared landscapes.

2. Goal and Objectives

Goal: "To ensure harmonious co-existence between wildlife and people through holistic approach"

Objectives:

The objectives of the strategy are to;

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

3. Methodology

3.1. Site Description

Dogar gewog which is one of the 10 gewogs under Paro Dzongkhag, shares its boundaries with Shaba gewog to the north, Naja gewog to the south, Haa Dzongkhag to the west, Thimphu Dzongkhag to the east and Chukha Dzongkhag to the southwest. Encompassing an area of 106.1 km^2 (10,610 ha) with elevations ranging from 2,100 to 4,700 meters above the sea level (masl), the gewog comprises of five Chiwogs, 29 villages and 424 households, with a total population of 2,283 (48.14% male and 51.42% female) as recorded in the Population and Housing Census of Bhutan, 2017 (PHCB).

The gewog features diverse forest ecosystems, dominated by Blue Pine (25.4%), followed by Fir (17.8%), Hemlock (9.4%), and Mixed Broadleaved Forests (8.6%). Agriculture remains the primary source of livelihood, with an average household landholding of 4.47 acres, mostly agriculture dryland used for wheat, barley and cash crop cultivation. Livestock rearing is also an important supplementary income source, alongside off-farm activities.

In terms of infrastructure, the gewog is connected by 47.39 kilometers (km) of farm roads providing access to all Chiwogs and is traversed by a Secondary National Highway (SNH), which serves as a major transport route between Paro and Haa, facilitating both mobility and economic activities.

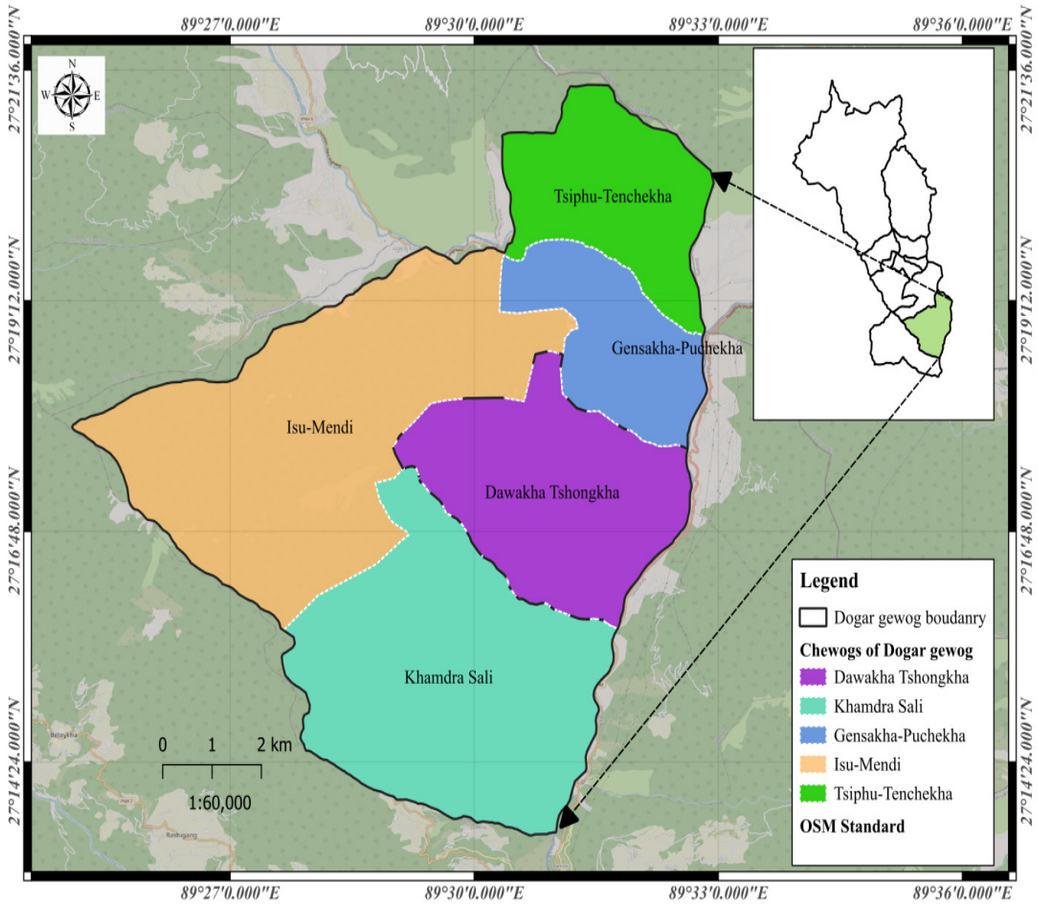

Figure 1: Map of Dogar gewog

3.2. Method: C2C Framework

Designing the strategy was based on the approaches and principles of C2C for management of HWC. The C2C strategy is a structured, integrated framework designed to guide the systematic planning, implementation and monitoring of HWC management with principles of holism, resilience, shared responsibility and tolerance. The strategy operates on four key assumptions: all four primary outcomes must be achieved to manage HWC effectively. The strategy provides clear, stepwise guidance for effective management, promoting integrated and holistic strategies that balance long-term solutions with short and intermediate-term interventions (Figure 2).

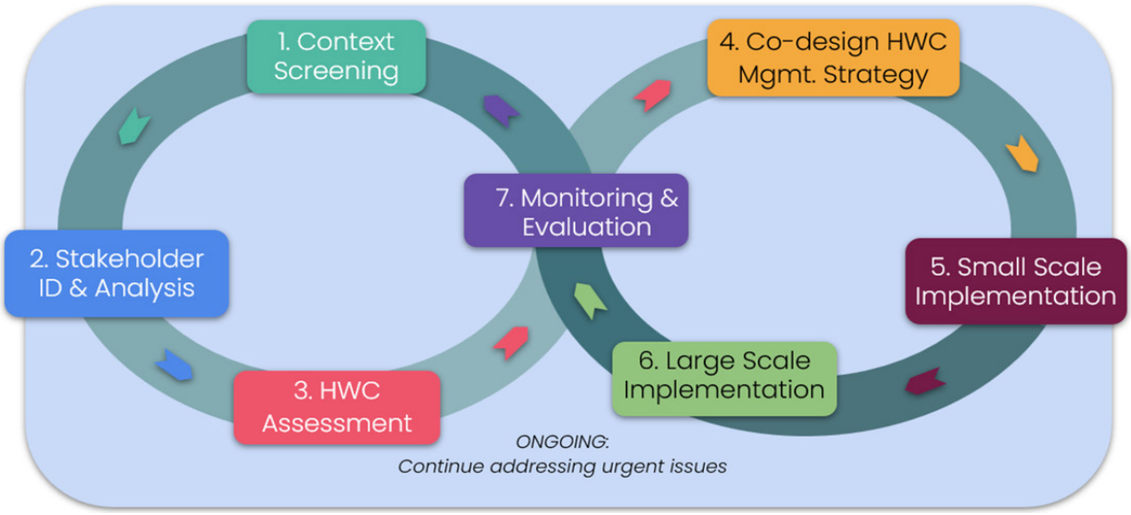

Figure 2: C2C Framework to ensure effective and sustainable HWC management (C2C Guideline)

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, human demographics and livelihoods), trends in HWC (e.g., records of conflict species, frequency/severity and types of conflict and 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 individuals or groups of individuals who have an interest or "stake," in the subject under consideration in this case the HWC situation. Typically, multiple stakeholder groups are involved in HWC scenarios. 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 the C2C strategy, it is crucial to understand the stakeholders involved in HWC and their collaborative potential.

Therefore, a core team consisting of the forestry officials, local government officials, Gewog Agriculture and Livestock Extension Supervisors and Tshogpas from five Chiwogs. Together, the stakeholder identification and analysis were carried out using the Stakeholder Analysis Matrix (C2C Tool 5), which involves clustering stakeholders (Table 1). This matrix employs 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 Dogar Gewog.
- their influence on the long-term success of an HWC management strategy.
- their availability to participate in the co-design of the HWC management strategy.

Table 1. Stakeholder Analysis Matrix for Dogar gewog

Group, Organization or Individual NAME	INTEREST in HWC and its management in this landscape (1 - 5)	INFLUENCE on long-term success of a HWC management strategy (1 - 5)	AVAILABILITY to participate in the co-design of a HWC management strategy (1 - 5)	Categories
School (Dawakha LS, Mendi PS)	3	4	4	Medium interest, high influence and availability
BHU (Tshongkha)	3	2	3	Medium interest, low influence and medium availability
Gewog Agriculture Extension Officer	5	5	5	High interest, influence and availability
Gewog Livestock Extension Officer	5	5	5	
Forestry (1)	5	5	5	
Gup	4	5	5	
Dawakha-Tshongkha Chiwog Tshogpa	4	5	5	
Goensakha-Puchhekha Chiwog Tshogpa	4	5	5	
Mendrel-Uesuna Chiwog Tshogpa	4	5	5	
Tsiphoog-Tenchhekha Chiwog Tshogpa	4	5	5	
Khamdraag-Sali Chiwog Tshogpa	5	5	5	
Mangmi	4	5	5	
Gewog Administration Officer	3	4	3	Medium interest, high influence and medium availability
Royal Bhutan Police (Tashigang)	2	4	2	Low interest, high influence and Low availability
Green Bhutan Corporation Limited (GBCL) - Issuna Park	4	4	1	high interest, high influence and low availability
Karma Feed Agent (Thenchupangkha)	2	2	1	Low interest, influence and availability
Early Child Care Development (ECCD) - Jadugang	2	1	1	

M/s. Dawa Dotshang	3	1	1	Medium interest, low influence and availability
Bhutan Oil Distributor (Thenchupangkha)	3	1	1	
Woodbased Industries (10)	3	2	2	
General Reserve Engineer Force (GREF)	3	1	1	
Bhutan Power Corporation Limited (BPCL) - Tshongkha	3	2	1	
Shopkeepers (Business)	4	3	2	High interest, medium influence and low availability
Selung Goenpa Shedra (Principal)	4	5	3	High interest, high influence and low availability
Tamchoe Lhakhang	4	5	3	
Dobjee Dzong (Lam)	4	5	3	
Phudrup Goenpa (Lam)	4	5	3	
Wangdue Nye (Lam)	4	5	4	High interest, influence and availability
Drakteng Lhakhang (Lam)	4	5	4	
Chikar Goenpa (Lam)	4	5	4	
Tashidingkha Lhakhang (Lam)	4	5	4	
Dogar Om Chigthuen Tshogpa	4	4	4	
Chikarwa CF Chairman	5	5	5	
Druk Thuenpa puenzhi CF chairman	5	5	4	
Drala Yargay CF chairman	5	5	5	
Dala-Bangkha Chain-link fencing group	5	5	5	
Farmers	4	3	4	High interest, medium influence and high availability
Sali Water group	5	3	4	
Dogar Cable Services	4	2	2	High interest, low influence and availability

Stakeholders were classified into two categories: duty bearers/service providers (indicated in blue) and community members (indicated in green). A duty bearer or service provider refers to any responsible entity or institution operating within the landscape and delivering services to people and/or wildlife. This includes governmental and non-governmental bodies, civil society organizations, local associations, private sector actors and companies, donor agencies, research institutions, media organizations, educational institutions, tourism operators, as well as agricultural enterprises, estates and plantations that are directly affected by wildlife and a community member refers to any individual or actor living within a given area or dependent on its natural resources for subsistence (Gross et al, 2025).

A total of 32 duty bearers/service providers and seven community members were identified. The stakeholder analysis highlights a diverse range of interest, influence and availability levels among groups involved in the HWC management strategy. As shown in Table 1, stakeholders with high interest, influence and availability are pivotal to the strategy's success. Those with medium influence can play important supporting roles in information dissemination and resource management. Conversely, stakeholders with low interest and influence have minimal direct impact on the initiative.

Step 3: HWC Assessment

The C2C assessment consists of tailored questionnaires for two stakeholder groups; duty bearers/service providers and community members. This structure captures diverse perspectives and compares how views align or differ across six elements; Policy, Prevention, Response, Understanding the Conflict, Mitigation and Monitoring, within four outcomes; People, Livelihoods/ Assets, Habitat and Wildlife. Questions addressed to duty bearers/service providers assessed the effectiveness and adherence to HWC policies and programs. Conversely, questions presented to community members evaluate their experiences, awareness and perceptions of these initiatives, utilizing a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

The HWC assessment was carried out using survey questionnaires. The sample size was determined using Yamane's (1967) formula at a 95% confidence level (Yamane, T., 1967). After conducting a training session and pre-testing the household survey, data collection was undertaken from April 17 to May 5, 2025. One-on-one household surveys were conducted across all Chiwogs, involving 35 service providers/duty bearers, and 203 community members exceeding the sampling size of 193 from five Chiwogs.

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 (HHs) in the study area from five Chiwogs were about 373 HHs for Dogar. The sampling frame for the survey was 193 HHs for Dogar Gewog (Table 2).

Table 2. Household Survey from each chiwog under Dogar gewog.

Chiwog	No. of household	Sample size
Dawakha-Tshongkha	85	44
Goensakha-Phuchhekha	45	23
Mendrel-Uesuna	83	43
Khamdraag-Sali	140	72
Tsiphoog-Tenchhekha	20	10
Total	373	193

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 203 HHs. 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

To Co-design the C2C strategy, a community and stakeholder consultation was conducted in every chiwog in 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 approach. This inclusive process ensured that the strategies were closely aligned with the needs and perspectives of the local communities. A total of 167 HHs (Table 3) participated in the consultation process for the co-design of the C2C strategy development for Dogar gewog, with 51% of participants being male (n = 86) and 49% female (n = 81).

During the consultation meeting, the results of the C2C assessment were shared with stakeholders through a comprehensive presentation and a visual report detailing the overall gewog status, C2C framework, C2C process, outcome by 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 interventions aimed at managing HWC, categorized into short-term and long-term action implementation along with sites and description of each action. Following the group work, participants presented their findings, which were then discussed to validate and refine the proposed actions based on HWC scenario in the chiwog. The compiled actions from the consultation were used to prepare the C2C strategies and intervention plan for effective HWC management for Dogar gewog over the next five years.

Table 3. Participants from chiwog during Co-design Consultation

Sl/No.	Chiwog	Nos. of Participants	Male	Female
1	Dawakha-Tshongkha	48	26	22
2	Tsiphoog-Tenchhekha	7	6	1
3	Khamdraag-Sali	51	23	28
4	Goensakha-Phuchhekha	22	16	6
5	Mendrel-Uesuna	39	15	24
Total		167	86	81
Male: Female %			51%	49%

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 funding and other resources. These activities are practical and manageable, enabling affected communities to take immediate action to address pressing HWC challenges. In Dogar gewog, 17 such actions have been identified as part of the small-scale implementation and 6 actions as large-scale implementation programs. These actions aim to provide quick, tangible solutions to mitigate the impact of HWC while building momentum for longer-term strategies.

4. Results and Discussion

4.1 Demography and Social Information

Understanding the demographic profile of community members was essential for capturing diverse perspectives and ensuring an inclusive and representative assessment. A total of 203 HHs were surveyed, exceeding the initially planned sampling frame of 193 households for community members and in addition, data were collected from 35 service providers exceeding the originally identified 32 service providers at the inception of the assessment. Gender representation among respondents was nearly balanced, with 51.7% male (n = 105) and 48.3% female (n = 98). In terms of age distribution, the majority of respondents were between 41 and 59 years (47.8%, n = 97) followed by those aged 18-40 years (28.6%, n = 58). Respondents aged above 60 years accounted for 23.6% (n = 48).

Regarding educational attainment, more than half of the respondents were illiterate (57.1%, n = 116). This was followed by those with primary education (26.6%, n = 54), secondary education (8.4%, n = 17), Non-Formal Education (NFE) (3.9%, n = 8) and other forms of education (3.9%, n = 8).

4.2 Overall Results of Dogar Gewog

4.2.1 Conflict Species of Dogar Gewog

In Dogar gewog, both service providers and community members identified different wildlife species as sources of HWC. Since agriculture and livestock farming are the primary livelihoods in the gewog, crop depredation and livestock predation by wild animals were reported as the most pressing challenges. The key conflict species highlighted include barking deer, bear, birds, grey langur, wild pig, sambar, serow, birds of prey, other herbivores,

macaques, other species, bats, capped langur, dhole, gaur, leopard and porcupine (Figure 3). Among these, service providers identified bear, barking deer, wild pig and birds as the most problematic species, while community members highlighted wild pig, barking deer, bear, birds and grey langur as the most significant conflict animals.

The community members and service providers/duty bearers from five chiwogs in Dogar gewog identified wild pig, barking deer and bear as the most frequent and severe conflict species due to their significant impact on livelihoods, economic losses and human safety. Causing constant worries about food insecurity, physical safety, economic insecurity and mental distress over losses due to wildlife, making powerless to manage HWC.

Following are the conflict species recorded according to:

- **Service Providers/Duty Bearers:** barking deer, bear, birds, serow, wild pig, golden langur, sambar, gaur, grey langur, macaques, other herbivores and porcupine
- **Community Members:** barking deer, bear, birds, grey langur, wild pig, sambar, serow, birds of prey, other herbivores, macaques, other species, bats, capped langur, dhole, gaur, leopard and porcupine.

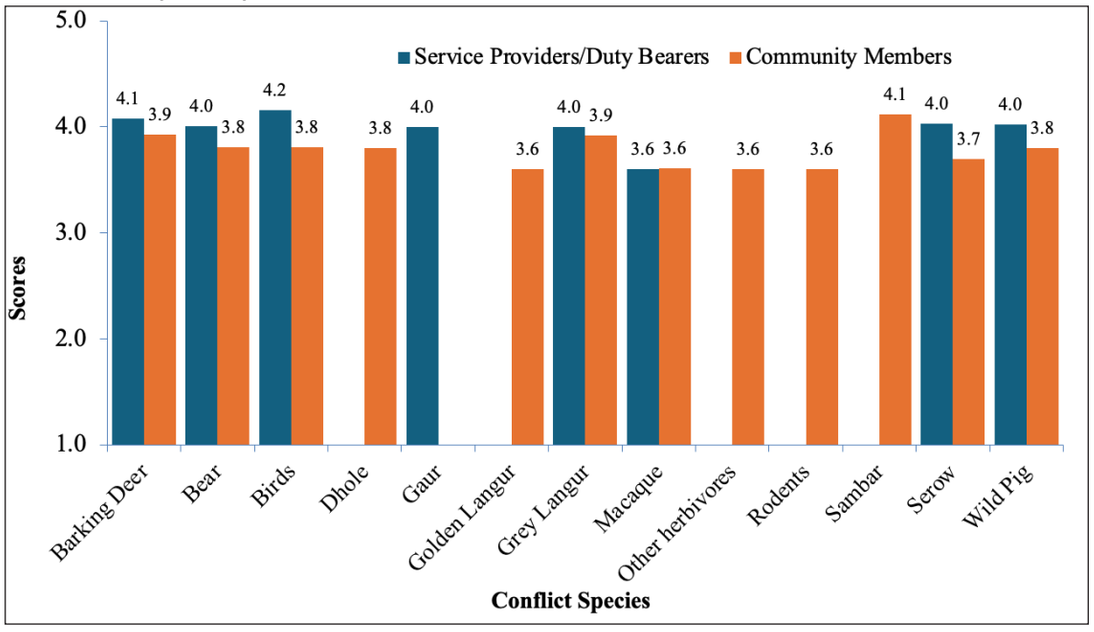

Figure 3: Conflict Species identified for Dogar gewog

4.2.2 Status of Outcomes at Gewog level

The C2C strategy to manage HWC must deliver positive outcomes across multiple interconnected dimensions. It envisions communities that are both capable and willing to coexist with wildlife, fostering a more balanced and

respectful relationship. Through the implementation of targeted interventions, the strategy aims to reduce losses caused by crop damage and livestock predation, thereby safeguarding livelihoods and assets. In turn, this will lead to a decline in retaliatory killings and poaching, and promote greater tolerance toward wildlife.

Ensuring the availability of adequate natural habitats further supports the survival of viable wildlife populations. By simultaneously addressing the needs of people, livelihoods, wildlife and habitats, the C2C strategy demonstrates that sustainable coexistence is achievable. When human well-being is secured and wildlife is given the space to thrive, both communities and ecosystems stand to benefit over the long term.

Table 4. Score under each outcome by category of respondents

Outcome	Service Providers/Duty Bearers	Community Members
People	3.79	3.85
Livelihoods/Assets	3.17	3.28
Wildlife	3.82	3.61
Habitat	3.34	3.22

The outcome with the lowest score was in the livelihoods/assets, with a score of 3.17 for service providers and 3.22 for community members, specifically under habitat. Livelihoods/Assets received the lowest score across all outcomes, as reported by both service providers and community members in Dogar Gewog (Figure 4). As a result, interventions aimed at reducing HWC and enhancing coexistence should prioritize for the Livelihoods/Assets outcome, followed by Habitat, People and Wildlife.

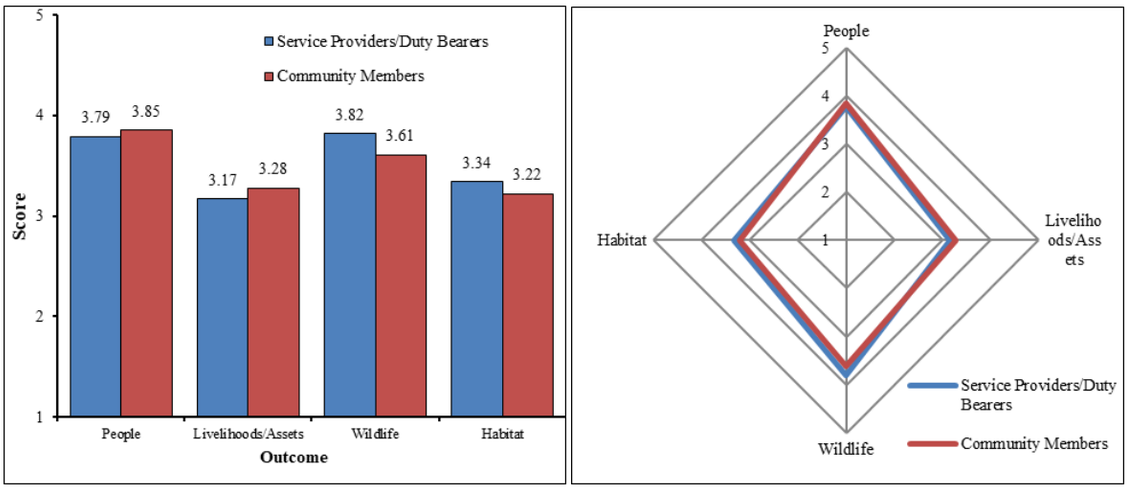

Figure 4: Result by Outcome against scores of community members and service providers

4.2.3 Status of Elements at Gewog level

In order to achieve the outcomes, six elements are essential to take into consideration and these elements were assessed under each outcome.

The assessment revealed six critical elements that must be considered under each outcome to effectively manage human-wildlife coexistence. The radar charts illustrate the perception of service providers/duty bearers and community members for different outcomes against six different elements of co-existence framework.

i. People Able and Willing to Live Alongside Wildlife:

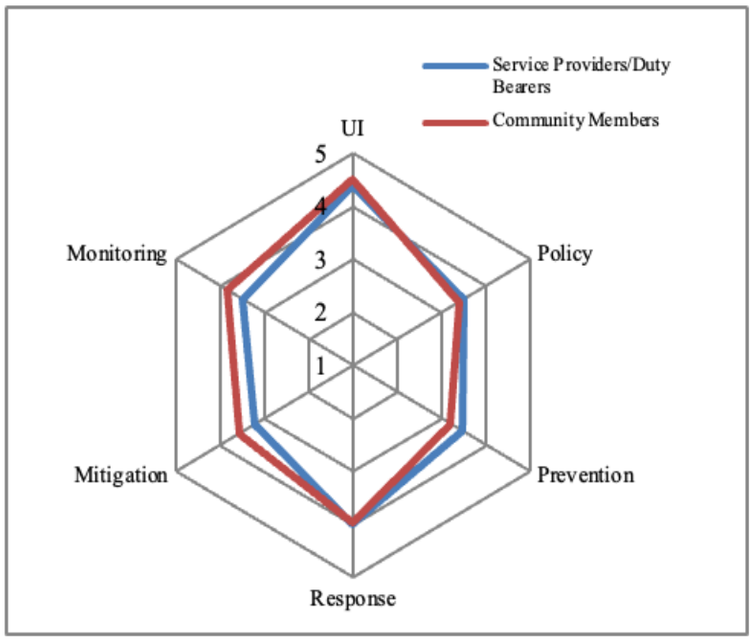

Figure 5: Sores against people able and willing to live alongside wildlife for Dogar gewog

Both groups shared level of understanding regarding the dynamics of human-wildlife interactions and relevant policies, likely due to their close proximity to wildlife and daily experiences. Service Providers/Duty Bearers expressed more confidence in their ability to prevent and respond to HWC, possibly due to better access to resources, training or authority. However, their lowest rating for the Mitigation element highlights the lack of financial schemes to compensate for losses, especially livestock and human casualties, potentially lowering community tolerance toward wildlife. In contrast, Community Members rated Prevention the lowest, emphasizing the need for stronger safety measures and community solidarity to help them coexist more safely with wildlife.

ii. Livelihoods/Assets Secured Against the Presence of Wildlife:

Livelihood or assets of the local communities are more vulnerable among the four outcomes and all the six elements are at weak contribution. Exposing the livelihoods and assets of local communities to risks associated with wildlife intrusion. Service Providers/Duty Bearers and community members both reasoned the complexity of understanding human-wildlife interactions and dynamics, which contributes to the challenge of identifying effective

measures to safeguard livelihoods and assets from wildlife presence. The mitigation element also received lower score from both groups, reflecting the inadequacy of programs designed to offset or subsidize wildlife-induced losses, along with a lack of livelihood diversification and alternative income sources.

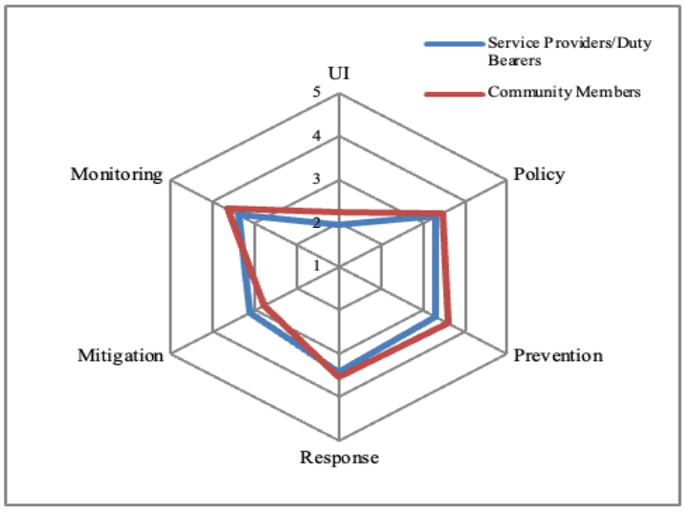

Figure 6: Scores against Livelihoods/Assets secured against the presence of wildlife

iii. Wildlife Thrives Alongside People:

The Prevention component received the lowest score, highlighting a critical gap in proactive measures to minimize HWC. This underscores the need to enhance preventive strategies, particularly through strengthened patrolling efforts to curb illegal activities that lead to the degradation of wildlife habitats. However, community members assigned the lowest ranking to the mitigation component, suggesting that a restoration plan for wildlife populations may be unnecessary if the other elements are effectively implemented and contribute fully.

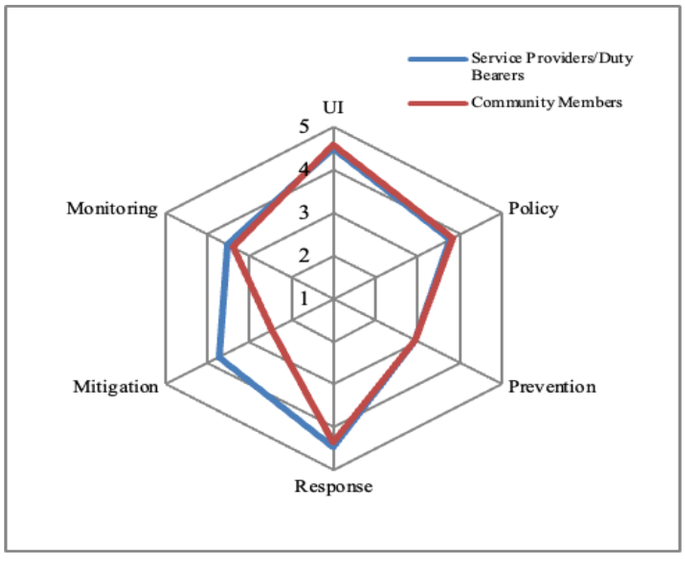

Figure 7: Scores against wildlife thrives alongside people

iv. Habitat Sufficient to Ensure Sustainable Wildlife Populations:

The lowest score in this outcome was attributed to the Prevention element. It indicates that natural resources in the landscape are degrading, compromising habitat quality for wildlife to thrive, affecting wildlife populations and increasing the likelihood of conflict as wildlife encroaches on human settlements. Service providers/duty Bearers and community members both emphasizing the need to enhance and strengthen the sustainable management and use of natural resources.

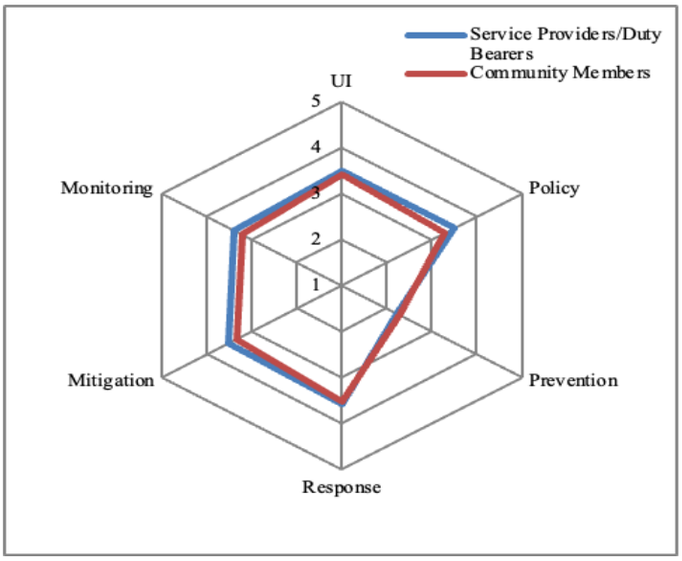

Figure 8: Score against habitat sufficient to ensure sustainable wildlife populations

4.3 Status of Outcomes at Chiwog level

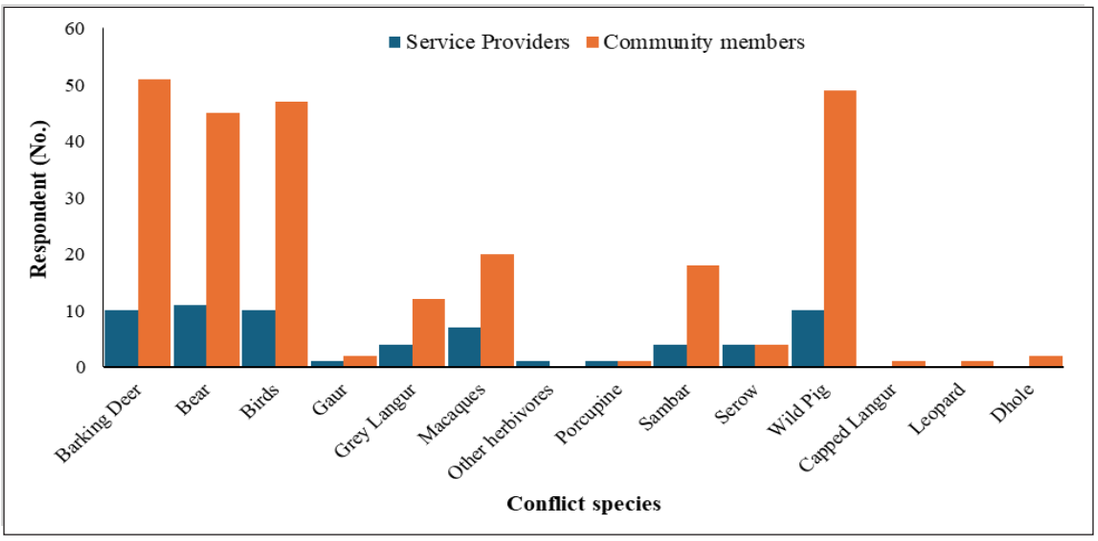

Figure 9: Conflict Species identified for Dawakha-Tshongkha chiwog

4.3.1 Dawakha-Tshongkha Chiwog

Community members have identified barking deer, wild pig, birds, bear,

birds, macaques and sambar as the primary conflict species in the chiwog. Whereas, the service providers ranked bear, barking deer, birds and wild pig as the most conflict species, followed by macaques, sambar and grey langur. Both service providers and community members identified wild pig, barking deer and bear as the most conflict species causing frequent and severe impact on cropland and livestock.

Among the outcomes, habitat was scored the lowest as identified by both service providers and community members in the Dawakha-Tshongkha chiwog. Therefore, habitat protection and conservation need to be upscaled, to enhance the sufficiency of suitable habitat to support viable wildlife population. In contrast, the people received the lowest scores as per the community members, indicating the communities' vulnerabilities to the impacts of wildlife encounters.

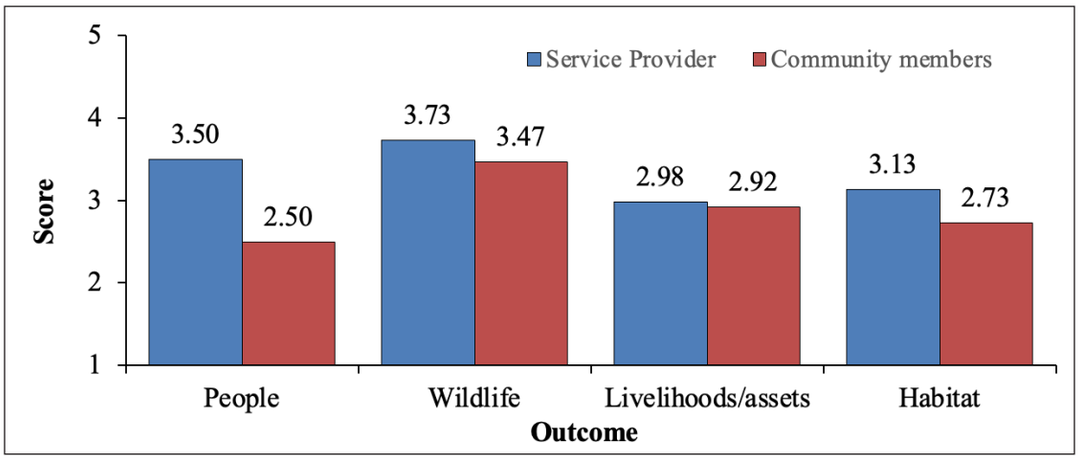

Figure 10: Result by score against each Outcome for Dawakha-Tshongkha chiwog

The assessment indicates that policy received the lowest score within the people outcome, pointing to underlying challenges related to institutional effectiveness, policy coherence and stakeholder coordination. This result suggests that existing policies and governance mechanisms may not be sufficiently responsive to community needs or adequately aligned with on-the-ground realities, thereby limiting meaningful participation and effective decision-making. Strengthening and improving inter-agency collaboration and enhancing community engagement mechanisms are therefore critical areas for improvement.

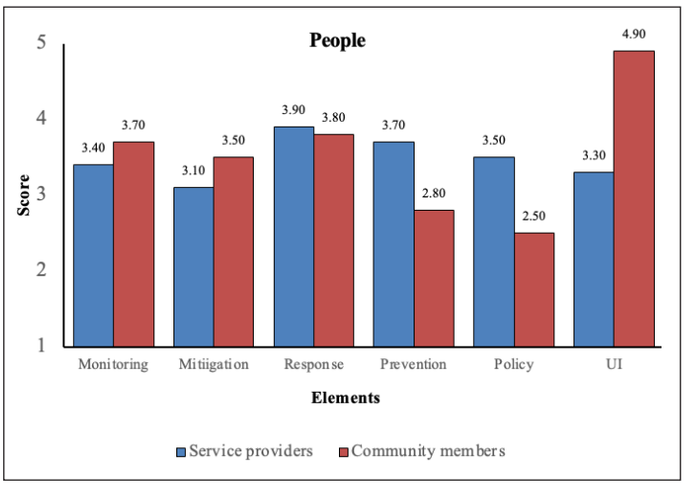

Figure 11: Score against each Element of the Outcome (People) for Dawakha-Tshongkha chiwog

Under the livelihoods/assets outcome, understanding interactions emerged as the lowest-ranked element. This reflects limited awareness and understanding among stakeholders of the complex interactions between human activities, wildlife behavior and livelihood systems. Such knowledge gaps can constrain the adoption of appropriate mitigation practices and reduce the effectiveness of livelihood protection measures. Addressing this weakness will require targeted awareness programs, improved data collection and the integration of local knowledge with scientific evidence.

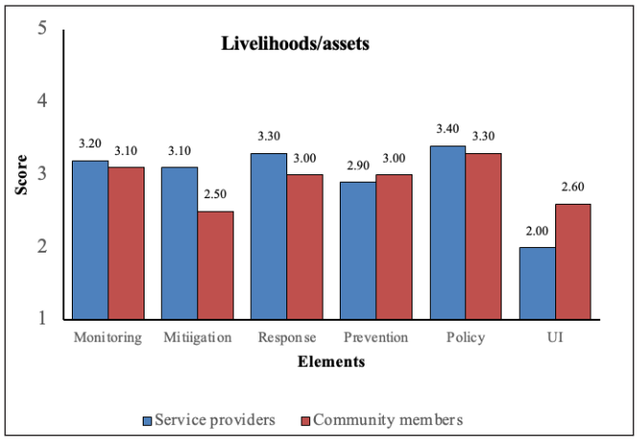

Figure 12: Score against each Element of the Outcome (livelihoods/Assets) for Dawakha-Tshongkha chiwog

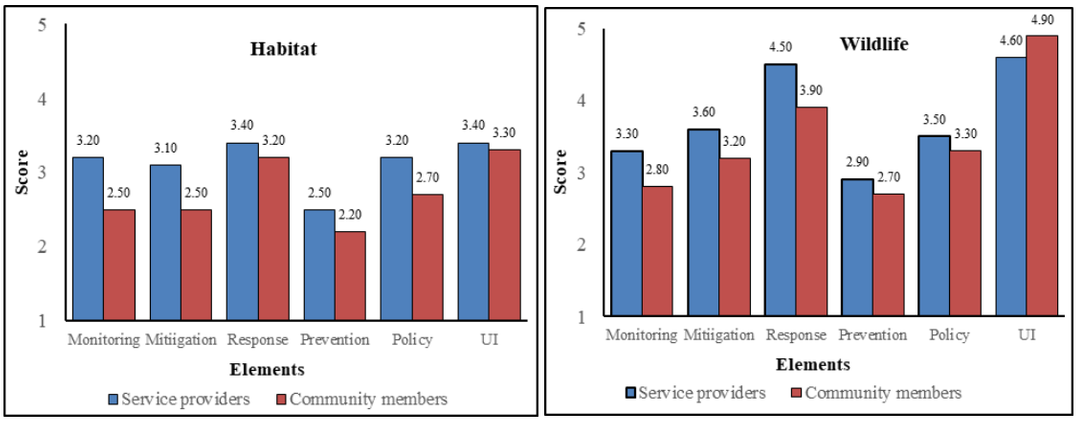

Figure 13: Score against each Element of the Outcome (habitat and wildlife) for Dawakha-Tshongkha chiwog

Similarly, prevention was identified as the weakest-performing element under both wildlife and habitat outcomes. This highlights a broader systemic shortfall in proactive and anticipatory approaches to managing HWC and habitat degradation. The current emphasis must be more on responding to issues than reducing risks. Enhancing preventive measures, such as early warning systems, habitat management and preventive infrastructure will be essential to reduce conflict incidences and ensure long-term conservation and livelihood sustainability.

4.3.2 Goensakha-Phuchhekha Chiwog

Community members identified barking deer, wild pig, birds, bear, macaques, sambar, grey langur, serow, dhole, gaur, leopard, capped langur and porcupine as conflict species in the Chiwog. Similarly, service providers considered bear, wild pig, ungulates and primates as conflict species (Figure 14). Both service providers and community members identified wild pig, barking deer and bear as the most conflict species causing frequent and severe impact on cropland and livestock. Therefore, to protect their crops, farmers are compelled to spend considerable time and effort guarding their crop, often at the expense of other productive activities. This constant vigilance not only adds to their workload but also increases mental stress and limits opportunities for diversifying their income sources.

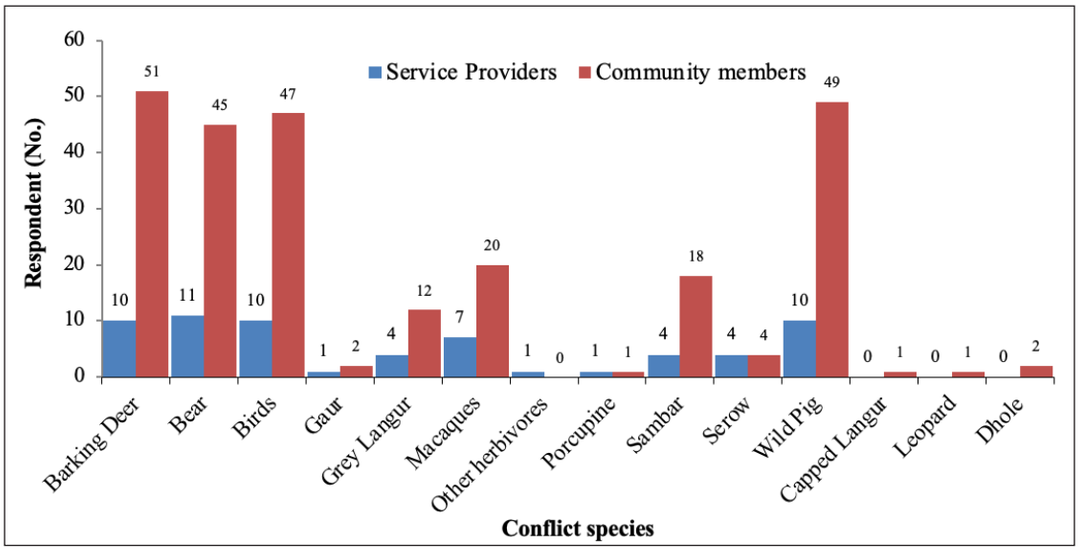

Figure 14: Conflict Species identified for Goensakha-Phuchhekha chiwog

Habitat received the overall lowest score among all outcomes as reported by both community members and service providers/duty bearers in the Goensakha-Phuchhekha chiwog. However, community members ranked, the livelihoods/assets the lowest scores, suggesting that they perceive their livelihoods/assets not secured from wildlife causing economic losses as the most significant consequence of interactions. In contrast, the habitat received the lowest scores as per the service providers/duty bearers, suggesting sufficiency of suitable habitat as missing gap for the co-existence.

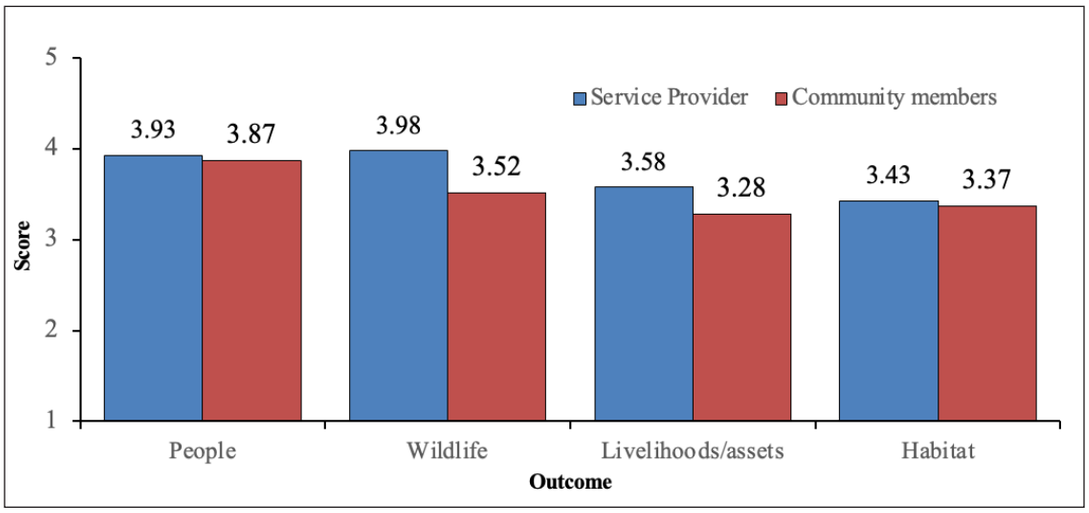

Figure 15: Result by Outcome for Goensakha-Phuchhekha chiwog

Similar to the findings from Dawakha-Tshongkha chiwog, the assessment in Goensakha-Phuchhekha chiwog revealed that policy scored the lowest under the people outcome. This suggests persistent gaps in institutional coordination, policy clarity and the effectiveness of governance mechanisms at the local level, which may limit community engagement and the implementation of HWC management measures. Under the livelihoods/ assets outcome, understanding interactions emerged as the lowest-ranked element, indicating limited awareness and knowledge of the dynamics of human-wildlife interactions, including the drivers, patterns and seasonal trends of HWC. This gap constrains the community's ability to adopt informed and adaptive practices to safeguard livelihoods and assets.

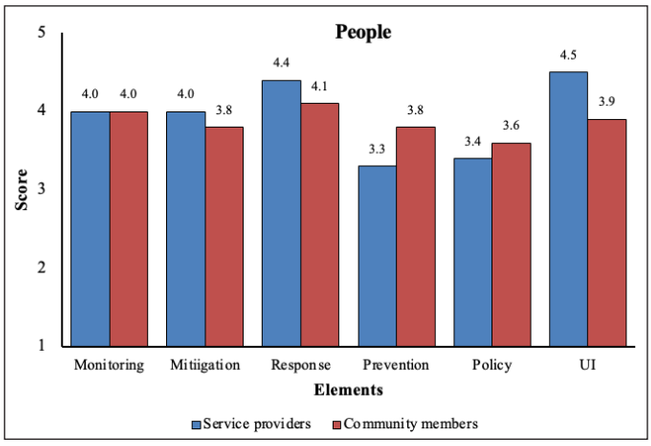

Figure 16: Score against each Element of the Outcome (people) for Goensakha-Phuchhekha chiwog

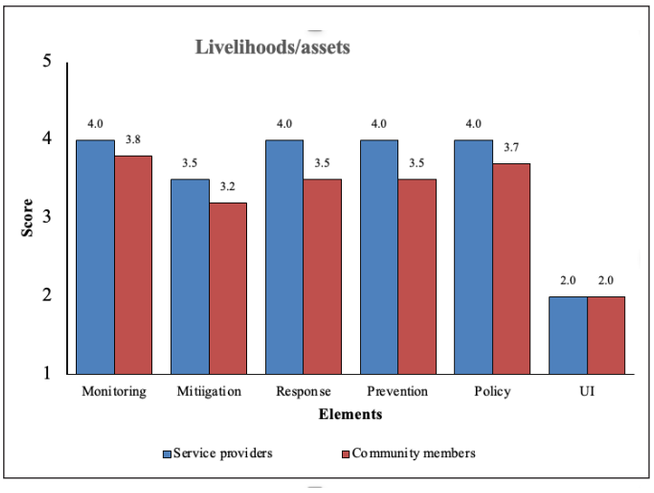

Figure 17: Score against each Element of the Outcome (livelihoods/assets) for Goensakha-Phuchhekha chiwog

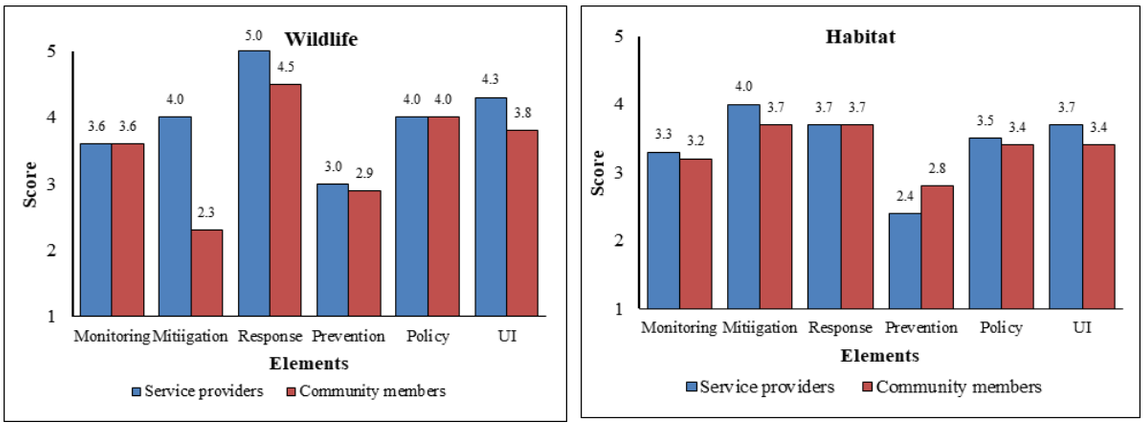

Figure 18: Score against each Element of the Outcome (wildlife and habitat) for Goen-sakha-Phuchhekha chiwog

Furthermore, prevention was consistently identified as the weakest element across both the wildlife and habitat outcomes. This highlights inadequate emphasis on proactive and preventive approaches, such as early warning systems, habitat management and landscape-level planning, which are critical for reducing conflict before it occurs. Taken together, these findings underscore the need to prioritize strengthening policy and governance frameworks, improving community understanding of human-wildlife interactions and investing in preventive measures. Addressing these key gaps will be essential for promoting coexistence and effectively reducing HWC in Goensakha-Phuchhekha chiwog.

4.3.3 Khamdraag-Sali Chiwog

In Khamdraag-Sali chiwog, both community members and service providers identified wild pig, barking deer, bear, birds, grey langur, serow and sambar (Figure 19) as the most conflict species. Interestingly, service providers/duty bearers identified gaur and community members mentioned bats causing minimal conflicts to the people of Khamdraag-Sali chiwog.

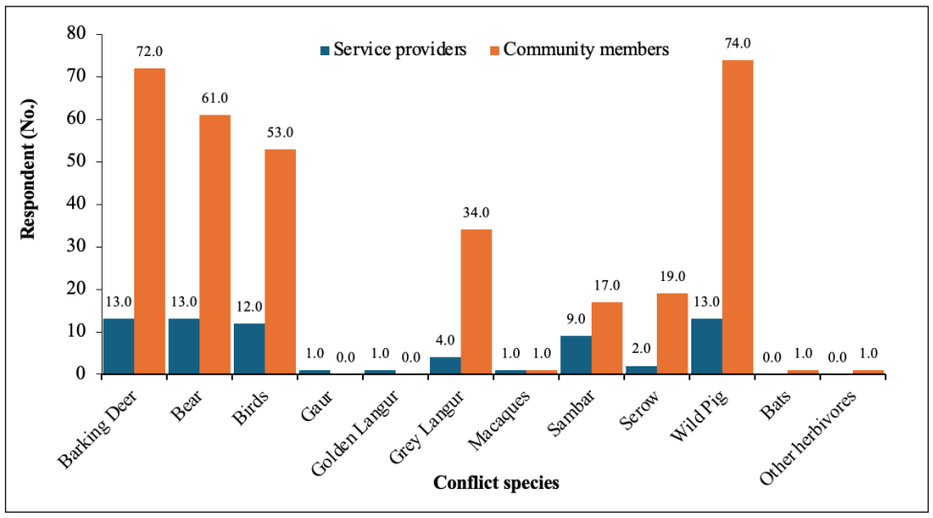

Figure 19: Conflict Species identified for Khamdraag-Sali chiwog

Livelihoods/assets received the overall lowest score among all outcomes as reported by both community members and service providers/duty bearers in Khamdraag-Sali chiwog, indicating that, the livelihoods/assets of local communities are exposed to risks associated with wildlife intrusion (Figure 20). However, community members perceived habitat management through preventive strategies to foster peaceful coexistence.

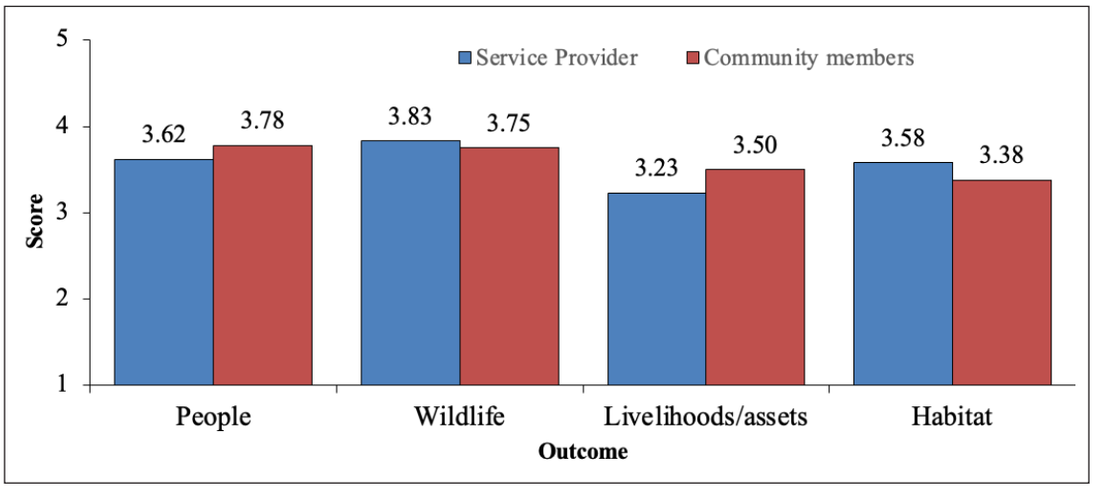

Figure 20: Result by Outcome for Khamdraag-Sali chiwog

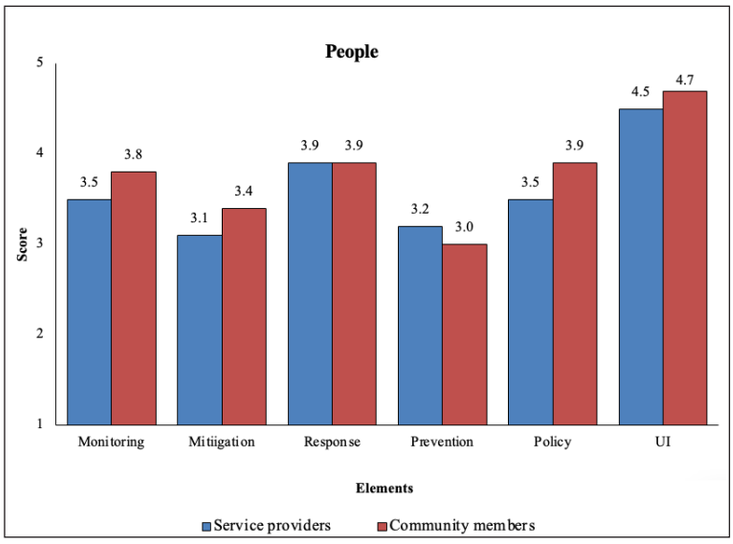

Figure 21: Score against each Element of the Outcome (people) for Khamdraag-Sali chiwog

In Khamdraag-Sali chiwog, the assessment indicates that prevention recorded the lowest score under the people outcome, reflecting limited emphasis on proactive engagement, early risk reduction and anticipatory planning at the community and institutional levels. This suggests that existing approaches remain largely reactive, thereby constraining the effectiveness of HWC management efforts.

Under the livelihoods/assets outcome, understanding interactions emerged as the weakest element, highlighting gaps in knowledge related to the drivers, patterns and spatial-temporal dynamics of human-wildlife interactions. This lack of understanding undermines informed decision-making and the adoption of adaptive livelihood practices that could reduce exposure to conflict.

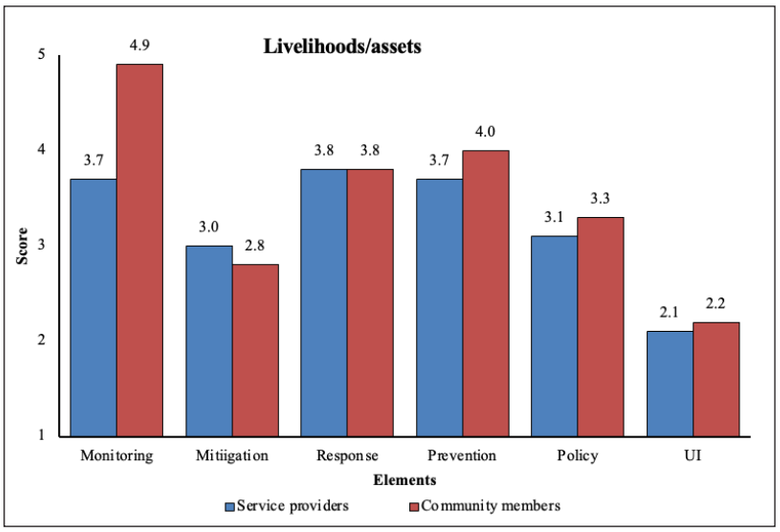

Figure 22: Score against each element of the outcome (livelihoods/assets) for Khamdraag-Sali chiwog

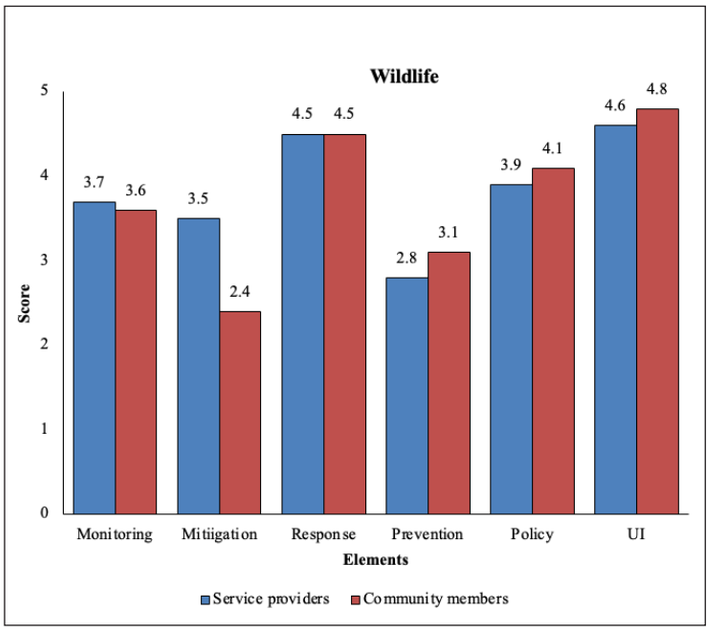

Figure 23: Score against each Element of the Outcome (wildlife) for Khamdraag-Sali chiwog

Within the wildlife outcome, both mitigation and prevention received comparatively low scores. This indicates insufficient implementation of measures aimed at minimizing conflict impacts on wildlife and reducing the likelihood of conflict occurrence, such as habitat improvement, species-

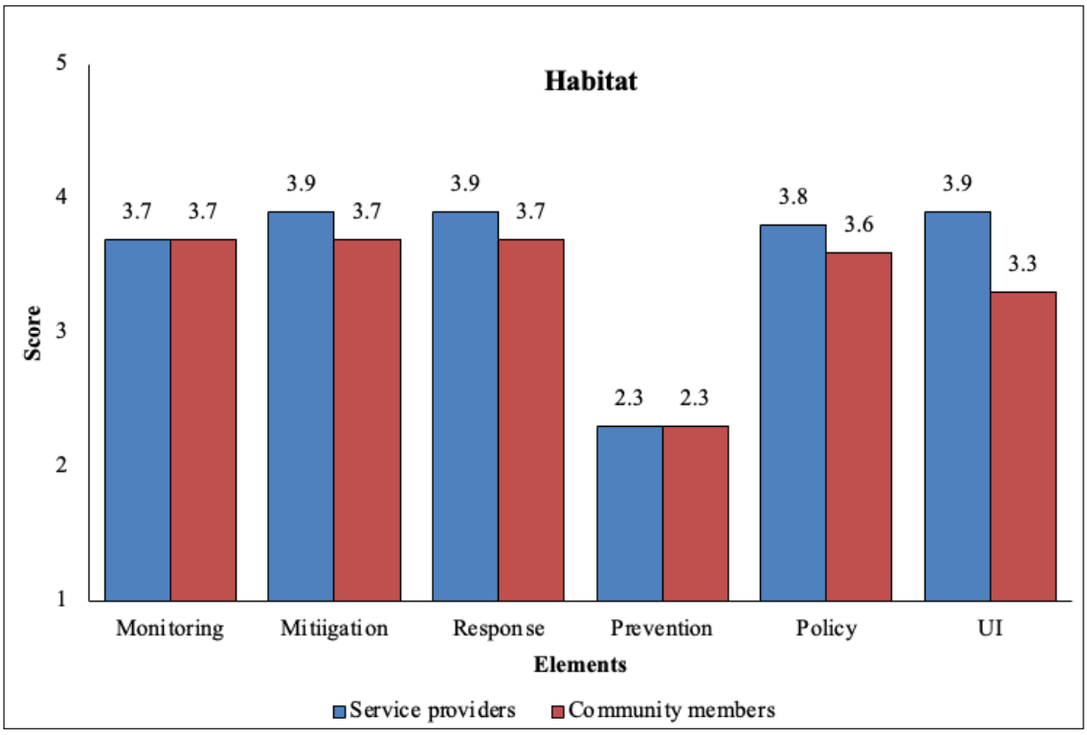

Figure 24: Score against each Element of the Outcome (habitat) for Khamdraag-Sali chiwog

specific management interventions.

Similarly, under the habitat outcome, prevention was identified as the weakest element, pointing to gaps in proactive habitat management and landscape-level interventions that could reduce wildlife encroachment into human-dominated areas.

Collectively, these findings emphasize the need to strategically prioritize preventive and mitigation-focused interventions, strengthen understanding of human-wildlife interactions and adopt an integrated, forward-looking approach to promote coexistence and sustainably reduce HWC in Khamdraag-Sali chiwog.

4.3.4 Mendrel-Uesuna Chiwog

In Mendrel-Uesuna chiwog, both community members and service providers consistently identified wild pig, bear, barking deer, birds, grey langur, serow and sambar as the main conflict species contributing to HWC. The convergence of perspectives between local communities and service providers underscored the widespread and recurrent nature of conflicts involving these species.

Their impacts are primarily manifested through crop depredation, damage to property and threats to livelihoods, reflecting both the diversity of conflict drivers and the complexity of managing multi-species interactions within the

landscape. This shared understanding provides a critical evidence base for prioritizing species-specific mitigation measures and designing targeted, context-responsive strategies to reduce conflict and promote sustainable coexistence in the Chiwog.

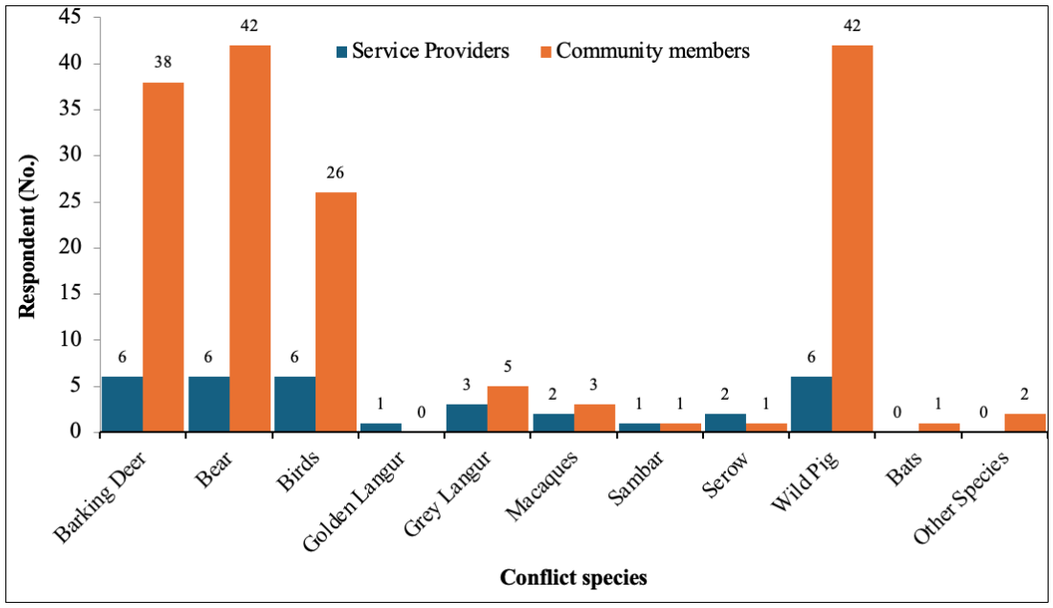

Figure 25: Conflict Species identified for Mendrel-Uesuna chiwog

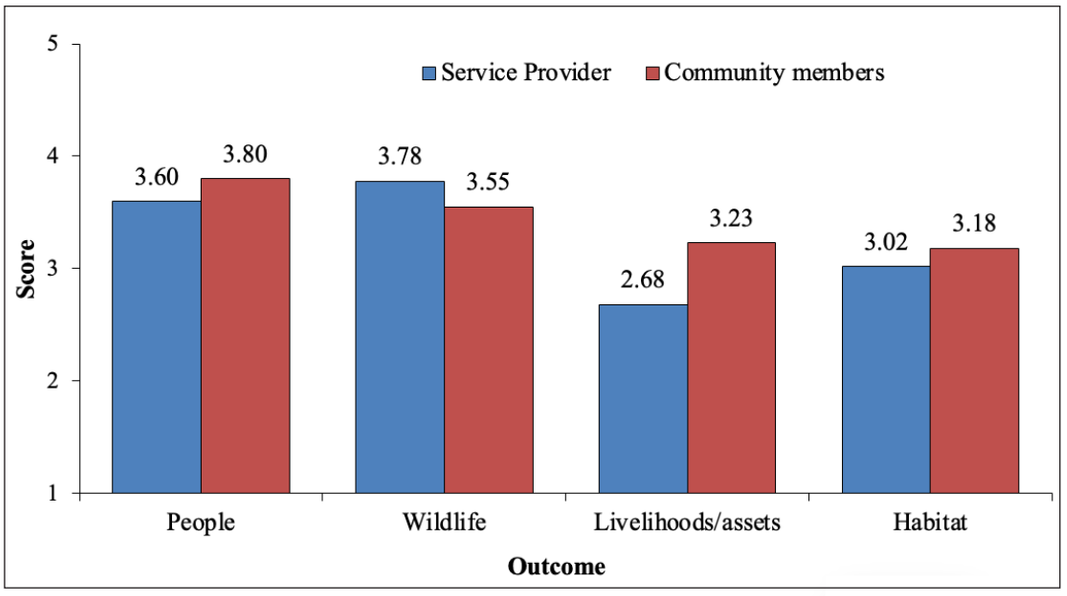

Figure 26: Score against each Outcome for Mendrel-Uesuna chiwog

Outcome scores revealed differing priorities between the communities and service provider/duty bearers. Service providers rated livelihoods/assets lowest, highlighting vulnerabilities in community resource management and the need for strengthened support and adaptive capacity. Community

members, however, identified habitat as the lowest, reflecting concern over environmental degradation and its role in HWC. This divergence underscores the importance of a balanced strategy that simultaneously addresses livelihood protection, habitat management and community awareness to enhance resilience and promote sustainable coexistence.

In Mendrel-Uesuna chiwog, the assessment identified key areas requiring attention across outcomes. Mitigation received the lowest score under both the people and wildlife outcomes, indicating gaps in measures to reduce risks to communities and wildlife from HWC.

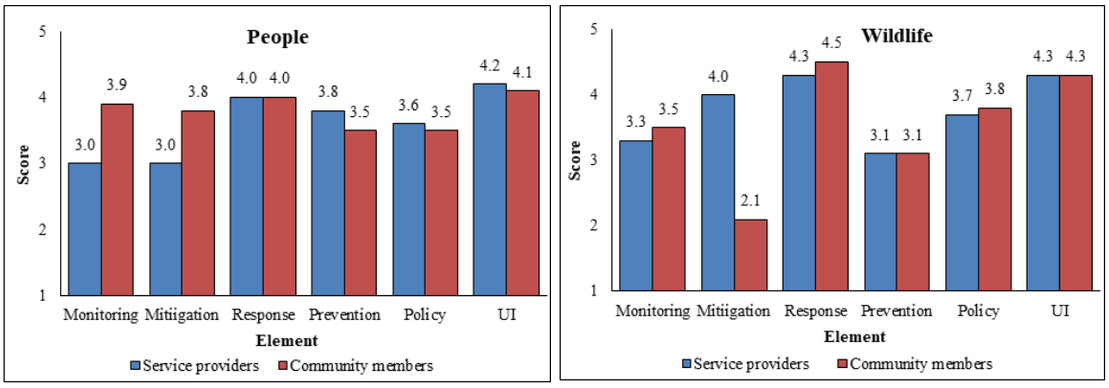

Figure 27: Score against each Element of the Outcome (people and wildlife) for Mendrel-Uesuna chiwog

Within the livelihoods/assets outcome, understanding interactions emerged as the weakest element. This indicates that community members have limited awareness of the complex dynamics and underlying drivers of HWC including seasonal patterns, wildlife behavior and the spatial distribution of risk. Such gaps in knowledge constrain the ability of households to anticipate, prepare for and adaptively manage conflict, leaving livelihoods and assets vulnerable. Improving understanding of these interactions is therefore critical to enabling evidence-based decision-making, enhancing risk mitigation strategies and supporting sustainable management of community resources in coexistence with wildlife.

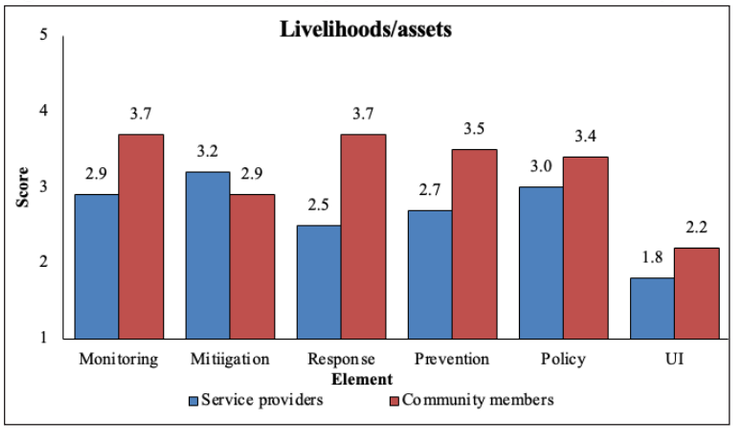

Figure 28: Score against each Element of the Outcome (livelihood/assets) for Mendrel-Uesuna chiwog

For the habitat outcome, prevention scored lowest, highlighting inadequate

proactive measures to protect habitats and reduce conflict before it occurs. These findings point to the need for targeted interventions that strengthen mitigation strategies, enhance community knowledge and prioritize preventive habitat management to support coexistence.

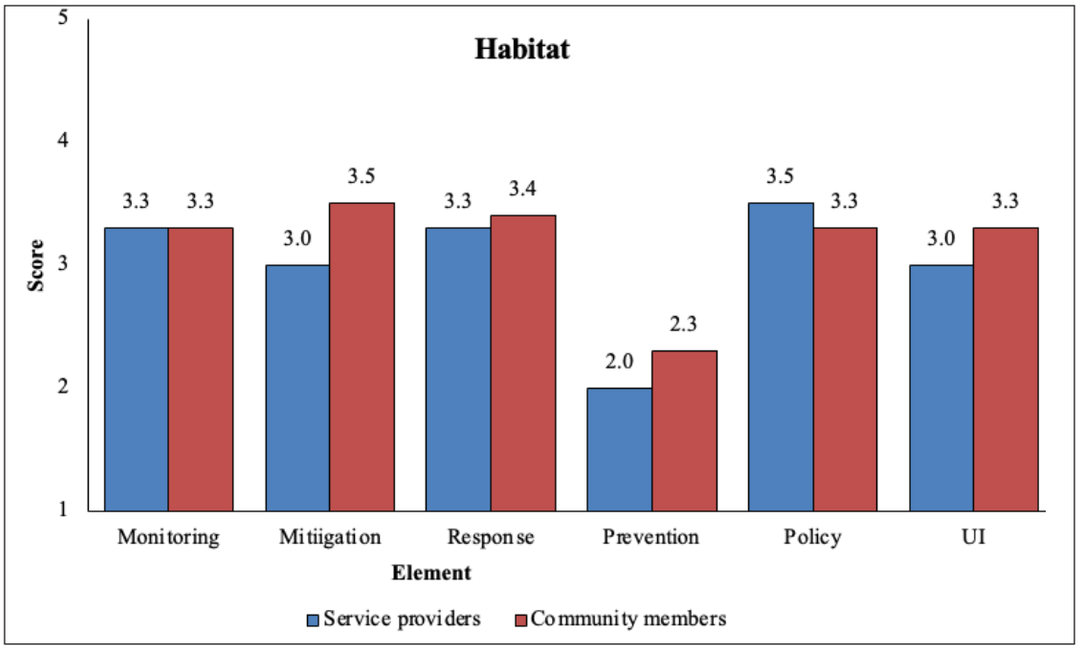

Figure 29: Score against each Element of the Outcome (habitat) for Mendrel-Uesuna chiwog

4.3.5 Tsiphoog-Tenchhekha Chiwog

Consistent with observations from other chiwogs, both stakeholder (community members and service providers/duty bearers) groups in Tsiphoog-Tenchhekhaha chiwog identified barking deer, wild pig, bear and serow as the key species driving HWC (Figure 30). In addition, community members highlighted grey langur and sambar as problematic species, reflecting their direct impacts on crops, property and daily livelihoods. These findings underscore the need for species-specific management strategies that address the behaviors and patterns of the most conflict-prone wildlife while supporting coexistence with the local community.

Among all assessed outcomes in Tsiphoog-Tenchhekha chiwog, livelihoods/assets consistently recorded the lowest overall scores, as reported by both community members and service providers/duty bearers. This convergence of perspectives indicates systemic vulnerabilities affecting household income sources, productive assets and livelihood security, particularly in the context of recurring HWC. The low performance of this outcome reflects the cumulative impacts of crop losses, damage to property and limited access

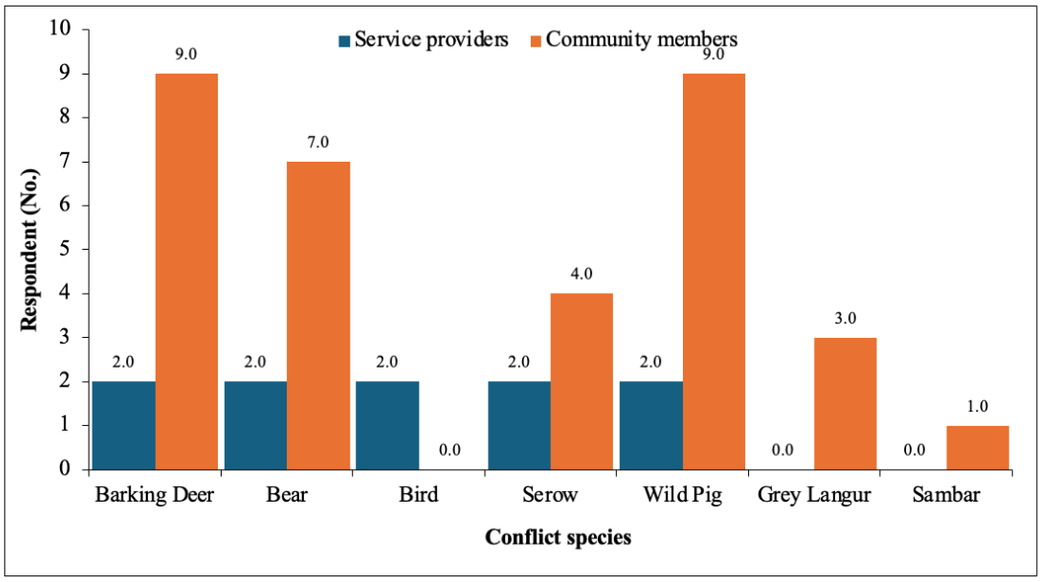

Figure 30: Conflict Species identified for Tsiphoog-Tenchhekha chiwog

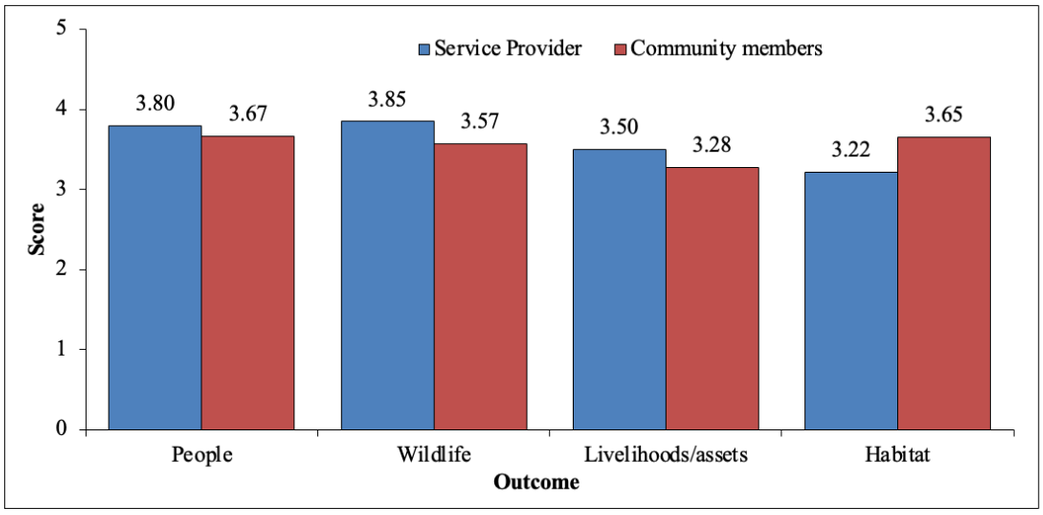

Figure 31: Result by Outcome for Tsiphoog-Tenchhekha chiwog

to effective mitigation and compensation mechanisms, which together undermine economic resilience at the household level.

In contrast, comparatively stronger performance across the people, wildlife and habitat outcomes suggests that while awareness, conservation intent and ecological considerations may be relatively better addressed, these have not translated into tangible protection of livelihoods and assets. The disparity highlights a critical implementation gap, where policy intentions and conservation efforts are insufficiently aligned with the practical realities faced by farming households.

Addressing the weaknesses under the livelihoods/assets outcome should therefore be prioritized within the strategy. Targeted interventions that integrate livelihood diversification, asset protection measures and context-specific HWC mitigation approaches will be essential to strengthen economic security, enhance community resilience and support sustainable coexistence in Tsiphoog-Tenchhekha chiwog.

In Tsiphoog-Tenchhekha chiwog, the assessment reveals notable weaknesses across multiple outcome domains. Prevention emerged as the least-performing element under both the people and habitat outcomes, reflecting limited adoption of anticipatory and risk-reduction measures to minimize human-wildlife interactions before conflicts arise. This suggests that existing approaches remain largely reactive, with insufficient emphasis on early warning, spatial planning and preventive landscape management.

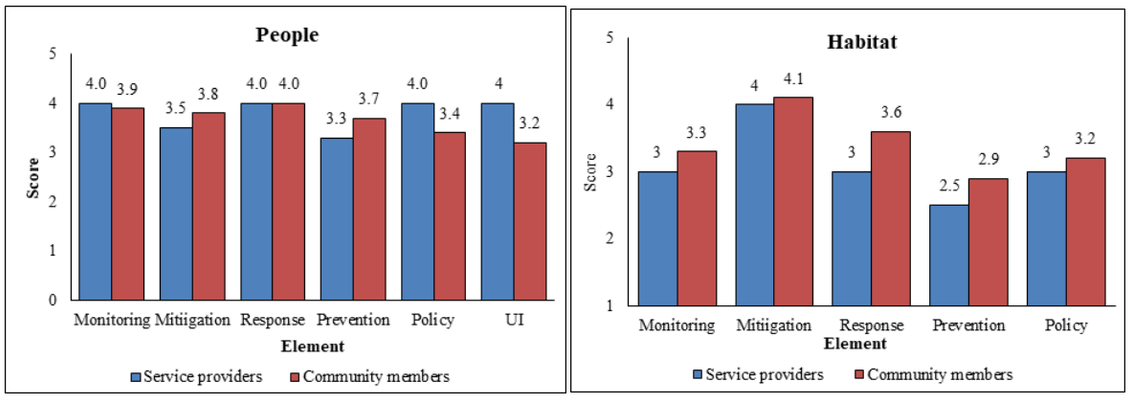

Figure 32: Score against each Element of the Outcome (people and habitat) for Tsiphoog-Tenchhekha chiwog

Within the livelihoods/assets outcome, understanding interactions recorded the lowest score, pointing to gaps in knowledge and awareness regarding the ecological and socio-economic drivers of HWC. Such limitations constrain households' capacity to make informed decisions and adopt adaptive practices that reduce exposure to wildlife-related risks.

Meanwhile, mitigation was identified as the weakest element under the wildlife outcome, indicating shortcomings in the effectiveness, consistency or

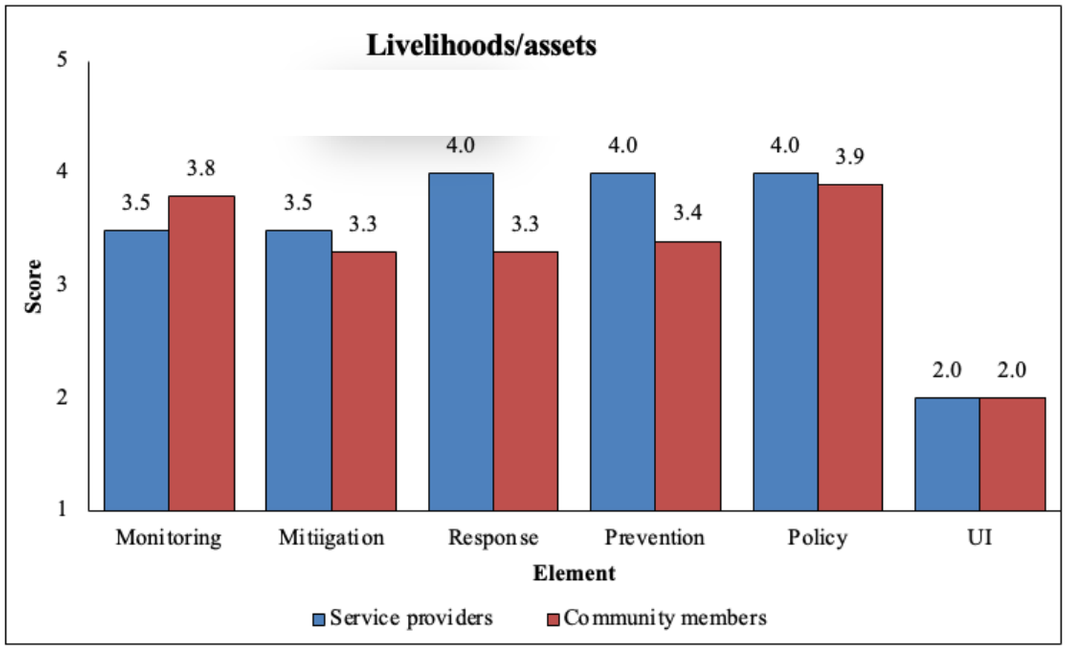

Figure 33: Score against each Element of the Outcome (livelihoods/assets) for Tsiphoog-Tenchhekha chiwog

appropriateness of measures implemented to manage wildlife behavior and reduce conflict impacts. This highlights the need to strengthen evidence-based, species-specific mitigation interventions that balance wildlife conservation objectives with community safety and livelihood security.

Collectively, these findings underscore the importance of reorienting strategic interventions toward prevention, improved understanding of human-wildlife dynamics and robust mitigation measures to foster sustainable coexistence in Tsiphoog-Tenchhekha chiwog.

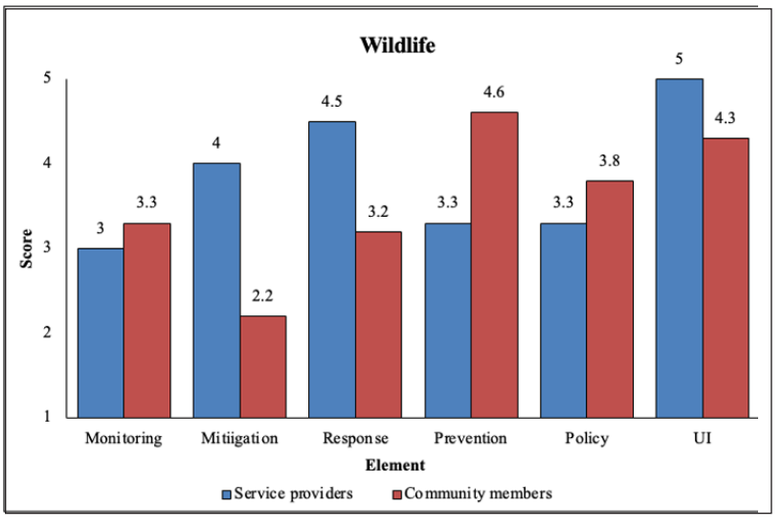

Figure 34: Score against each Element of the Outcome (wildlife) for Tsiphoog-Tenchhekha chiwog

5. Conflict to Coexistence Strategy

The C2C strategy for Dogar gewog is intended to transform existing HWC into a model of harmonious coexistence. It aims to address the underlying causes of conflict, strengthen the resilience of local communities, and promote sustainable natural resource management practices that benefit both people and wildlife. The strategy has been formulated based on the outcomes of HWC focused group discussions, the results of HWC assessments and chiwog-level consultations for co-design.

Interventions will focus on safeguarding livelihoods and assets by strengthening crop protection, improving livestock management and promoting alternative livelihoods. Community engagement is central, with programs designed to empower local communities to manage wildlife interactions and stewardship program. Effective mitigation and prevention measures, such as physical barriers, schemes, early warning systems and sustainable agricultural and livestock practices, which will reduce the impact of wildlife on community livelihoods. Policy integration will support the creation and enforcement of wildlife conservation and conflict resolution, while regular monitoring will track wildlife population and the effectiveness of interventions. Habitat management will reduce human-wildlife encounters, and collaboration between communities, service providers, government agencies and NGOs will ensure long-term success. This adaptive, integrated strategy aims to create a sustainable coexistence between wildlife and communities, fostering a harmonious balance for both.

Through consultative co-designing, 23 actions with 17 short-term and 6 long-term were derived and adopted for implementation. There are:

- Eight activities under livelihood/asset with budget outlay of Nu 21.625 million,
- Seven activities under people with budget outlay of Nu 3.920 million,
- Three activities under wildlife with budget outlay of Nu 2.600 million, and
- Five activities under habitat with budget outlay of Nu 3.460 million.

The total budget outlay for the 5-year (2026-2030) C2C Strategy for Dogar gewog is projected at Nu. 31.605 million. The funding is anticipated to be mobilized through the ongoing IKI Project, the Royal Government of Bhutan (RGoB) and its potential donors.

Table 5. Implementation Plan and Financial Outlay

Outcome	Actions/Activities	Location	Category	Responsibility		Budget Estimate (Nu millions)	Source of fund	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.	All Chiwogs	Short term	Paro Range and Dawakha BO	DFO Paro and Dogar Gewog	0.520	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	Paro Range and Dawakha BO	DFO Paro and Dogar Gewog	0.350	RGoB and other potential donors	2026-2027
	1.3. Strengthen community resilience and adaptive capacity through training programs on forest fire prevention, preparedness and management.	All Chiwogs	Short term	Paro Range and Dawakha BO	DFO Paro and Dogar Gewog	0.550	IKI, WWF and BFL, WWF	2026-2027
	1.4. Promote community awareness and responsibility on sustainable waste management practices.	All Chiwogs	Short term	Paro Range and Dawakha BO	DFO Paro and Dogar Gewog	0.300	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.	Dogar Gewog	Short term	DFO Paro	Paro Range and Dawakha BO	0.450	RGoB and other potential donors	2028-2029
	1.6. Conduct school awareness programs about wildlife protection and illegal poaching.	Dawakha Lower Secondary School	Short term	Paro Range and Dawakha BO	DFO, Paro and School Administration	0.250	RGoB and other potential donors	2027-2028
	1.7. 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	Paro Range and Dawakha BO	1.500	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.	Goensakha-Phuchekha and Lomekha	Long term	DFO Paro and Tarayana Foundation	Agriculture and Livestock Sector	9.950	RGoB/IKI, Tarayana, WWF Bhutan	2026-2029
	2.2. Provide solar-powered collar fencing to those herders, who migrate during season.	Dawa-Tshongkha, Tsiphoog-Tenchhekha	Long term	DFO Paro and Tarayana Foundation	Livestock Sector	1.150	RGoB/ IKI, WWF Bhutan, Tarayana	2026-2028
	2.3. Promote the adoption of crop varieties less attractive to wildlife and the integration of wildlife-friendly agricultural practices.	Khamdraag-Sali	Short term	DFO Paro	Agriculture sector and Dogar Gewog	0.450	RGoB and other potential donors	2028-2029
	2.4. Facilitate the development and maintenance of irrigation systems and safe drinking water infrastructure to ensure sustainable agricultural productivity and community health.	Mendrel-Uesuna (irrigation), Dawa-Tshongkha, Goensakha-Phuchhekha (drinking)	Long term	DFO Paro and Dogar Gewog	Tshogpas, Dawakha BO and communities	8.500	RGoB and other potential donors	2027-2030
	2.5. Provide green shade nets for vegetable cultivation to enhance crop protection, optimize growing conditions, improve yield and quality.	Mendrel-Uesuna	Short term	DFO Paro	Dogar Gewog, Agriculture sector and Dawakha BO	0.530	RGoB and other potential donors	2026-2028
	2.6. Promote and support the use of innovative wildlife deterrent technologies such as sensor lights and acoustic devices to reduce human-wildlife conflict.	Goensakha-Phuchhekha, Khamdraag-Sali, Dawakha-Tshongkha	Short term	DFO Paro	Dogar Gewog and Dawakha BO	0.450	RGoB and other potential donors	2027-2029
	2.7. Supply artificial insemination equipment and materials to promote high quality breed enhancement and improved livestock productivity	Dogar Gewog	Short term	DFO Paro	DFO Paro, Dogar Gewog and Dawakha BO	0.470	RGoB and other potential donors	2027-2028
	2.8. Provide high quality vegetables seeds and sapling of fruit trees	Mendrel-Uesuna, Khamdraag-Sali	Short term	DFO Paro	DFO Paro and Dogar Gewog	0.125	RGoB and other potential donors	2028-2029

3. Wildlife-thrives alongside people	3.1. Implement species population monitoring using tools like camera traps to track wildlife movements and population dynamics.	Dogar Gewog (All Chiwogs	Short term	DFO Paro	Paro Range and Dawakha BO	0.800	RGoB and other potential donors	2029-2030
	3.2. Strengthen field surveillance through the implementation of SMART patrolling and intensified patrol operations	Dogar Gewog (All Chiwogs	Short term	Paro Range and Dawakha BO	DFO Paro	0.850	WWF Bhutan, BFL and other potential donors	2026-2030
	3.3. Conduct predator-prey relationship assessment through systematic camera trap monitoring	Dogar Gewog (All Chiwogs	Short term	DFO Paro	Paro Range and Dawakha BO	0.950	RGoB and other potential donors	2029-2030
4. Habitat-sufficient to ensure sustainable wildlife population	4.1. Develop high-nutrition pastures on degraded land through plantation establishment.	Dawakha-Tshongkha, Khamdraag-Sali, Mendrel-Uesuna	Long term	DFO Paro	Livestock sector, Dogar Gewog and Dawakha BO	0.800	RGoB and other potential donors	2027-2030
	4.2. Improve and maintain existing natural waterholes in water-scarce areas to ensure adequate water availability for wildlife.	Khamdraag-Sali, Goensakha-Phuchhekha	Long term	Paro Range and Dawakha BO	DFO Paro	0.850	RGoB and other potential donors	2028-2030
	4.3. Enrich wildlife habitat through plantation of native palatable grass and fruit trees.	Dawakha-Tshongkha, Goensakha-Phuchekha	Long term	DFO, Paro	Agriculture sector, Paro Range and Dawakha BO	0.500	RGoB and other potential donors	2027-2029
	4.4. Revive and protect Layna Tsho through revival activities and plantation.	Dawakha-Tshongkha (Layna Tsho)	Short term	Paro Range and Dawakha BO	DFO Paro and communities	0.560	RGoB and other potential donors	2027-2029
	4.5. Promote and support use of iron pole as prayer flag to reduce pressure on well establish pole sized trees.	Mendrel-Uesuna	Short term	Paro Range and Dawakha BO	DFO Paro and Dogar Gewog	0.750	RGoB and other potential donors	2028-2029
Total estimated cost (Nu. In Million)						31.605		

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 strategy to monitoring and evaluating the implementation of the intervention 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 of the strategy, providing a clear basis for assessing progress. Output indicators will primarily track the achievements of the identified actions, ensure accountability and foster 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 implementation plan, the DFO Paro will conduct annual monitoring as per the C2C framework 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 intervention 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 concerned Functional Divisions of the 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 outreach and educational programs conducted and report produced.	2	Report	1	1	–	–	–
	1.2. Enhance community capacity through awareness programs on existing forest rules and regulations.	Number of community awareness programs conducted.	1	Report	1	1	–	–	–
	1.3. Strengthen community resilience and adaptive capacity through training programs on forest fire prevention, preparedness and management.	Number of communities trained in forest fire prevention, preparedness, and management	0	Number	100	100	–	–	–
	1.4. Promote community awareness and responsibility on sustainable waste management practices.	Number of community awareness sessions conducted	2	Report	1	1	–	–	–
	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	1	Report	–	1	1	–	–
	1.6. Conduct school awareness programs about wildlife protection and illegal poaching.	Number of School awareness conducted	0	Report	1	1		–	–
	1.7. 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	10	5	5	–	–

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	4.5	KM	_	5	5	5	5
	2.2. Provide solar-powered collar fencing to those herders, who migrate during season.	Number of herders provided with solar-powered collar fencing	0	Number	8	10	10	_	_
	2.3. Promote the adoption of crop varieties less attractive to wildlife and the integration of wildlife-friendly agricultural practices.	Number of HH supported cultivation of crop varieties less attractive to wildlife	0	Number	10	10	_	_	_
	2.4. 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 infrastructure developed or maintained	0	Number	_	1	1	1	1
	2.5. Provide green shade nets for vegetable cultivation to enhance crop protection, optimize growing conditions, improve yield and quality.	Number of HH benefited with green shade nets	0	Number	_	15	15	_	_
	2.6. Promote and support the use of innovative wildlife deterrent technologies such as sensor lights and acoustic devices to reduce human- wildlife conflict.	Number of innovative wildlife deterrent technologies supplied	0	Number	_	10	10	_	_
	2.7. 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	5	5	_	_	_
	2.8. Provide high quality vegetables seeds and sapling of fruit trees	Number of community members benefited	0	Number	25	25	_	_	_

3. Wildlife-thrives alongside people	3.1. Implement species population monitoring using tools like camera traps to track wildlife movements and population dynamics.	Number of population monitoring surveys conducted	0	Report	_	_	_	1	_
	3.2. Strengthen field surveillance through the implementation of SMART patrolling and intensified patrol operations	Number of SMART patrols conducted	100	Number	100	100	100	100	100
	3.3. Conduct predator-prey relationship assessment through systematic camera trap monitoring	Number of predators-prey relationship assessment conducted	0	Report	_	_	_	1	_
4. Habitat-sufficient to ensure sustainable wildlife population	4.1. Develop high-nutrition pastures on degraded land through plantation establishment.	Acres of degraded land brought under high-nutrition pasture lands	0	Acres	_	1	1	1	1
	4.2. Improve and maintain existing natural waterholes in water-scarce areas to ensure adequate water availability for wildlife.	Number of water holes improved and maintained	0	Number	_	_	15	15	15
	4.3. Enrich wildlife habitat through plantation of native palatable grass and fruit trees.	Acres of w wildlife habitat improved through plantation programs	0	Acres	_	1	1	1	_
	4.4. Revive and protect Layna Tsho through revival activities and plantation.	Number of revival activities conducted	0	Report	_	1	1	_	_
	4.5. Promote and support use of iron pole as prayer flag to reduce pressure on well establish pole sized trees.	Number of HH supported in production of iron pole as prayer flag	0	Number	1	1	_	_	_

Conclusion

The C2C Strategy for Dogar gewog constitutes a comprehensive and community-oriented framework designed to mitigate HWC and promote harmonious coexistence between local populations 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 components: Policy, Prevention, Response, Understanding the Conflicts, Mitigation and Monitoring.

The intervention strategy prioritizes the preservation of adequate habitats to sustain wildlife populations, the safeguarding of community livelihoods and 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 Dogar community, the C2C intervention 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, Dogar gewog can realize a balanced and mutually beneficial future for both human and wildlife populations.

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