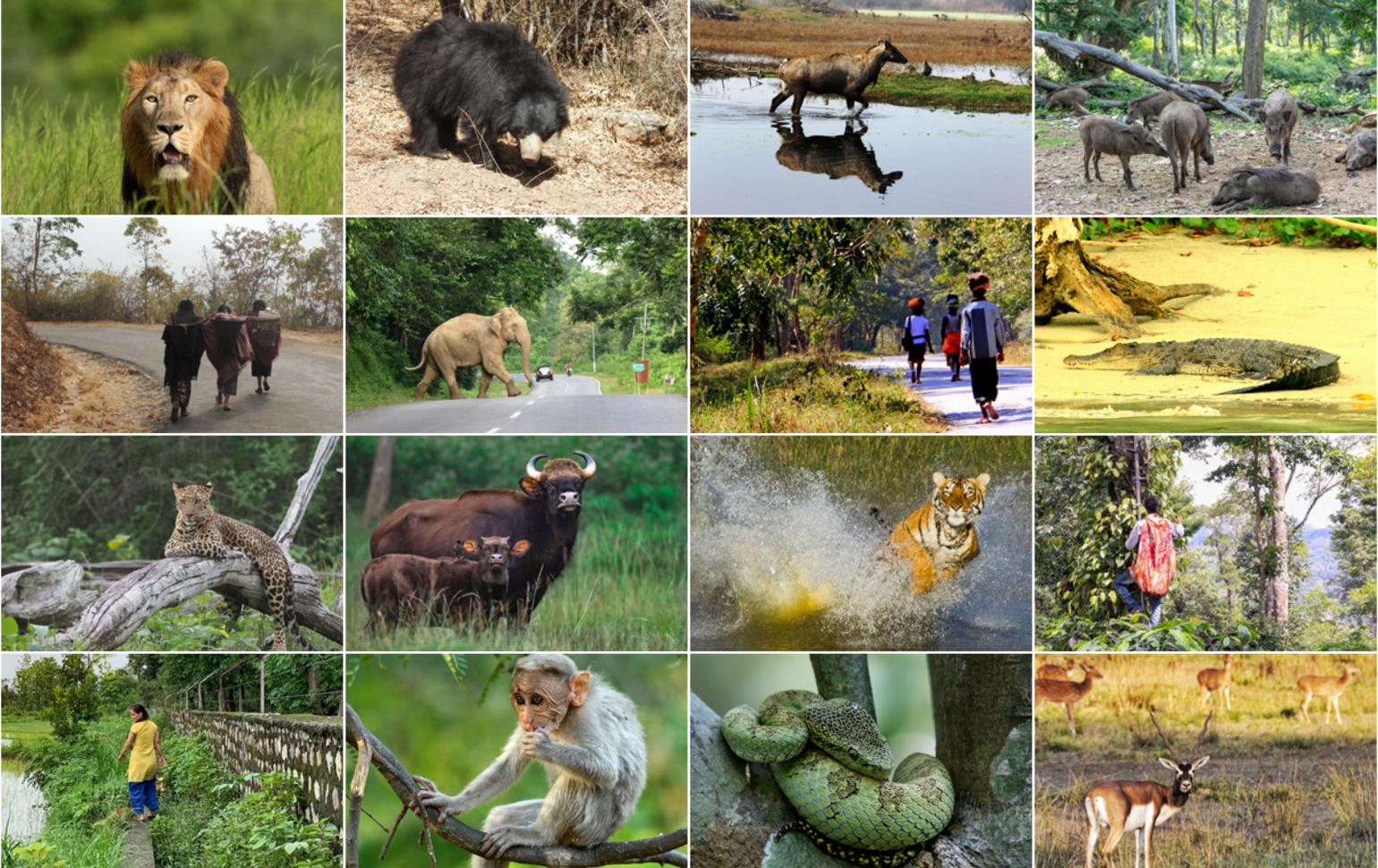




Government of India



Ministry of Environment,
Forest and Climate Change,
Government of India



National Human-Wildlife Conflict Mitigation Strategy and Action Plan of India

2021-26

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National Human–Wildlife Conflict Mitigation Strategy and Action Plan of India

2021–26



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ABBREVIATIONS

AO	Authorized Officer	MoHA	Ministry of Home Affairs
AWCSG	Asian Wild Cattle Specialist Group	MoRD	Ministry of Rural Development
BMC	Biodiversity Management Committee	MoU	Memoranda of Understanding
BMZ	German Federal Ministry for Economic Cooperation and Development	MP	Member of Parliament
CASFOS	Central Academy for State Forest Service	M&E	Monitoring and evaluation
CBD	Convention on Biological Diversity	NAARM	National Academy of Agricultural Research Management
CCF	Chief Conservator of Forests	NP	National Park
CEC	Central Empowered Committee	NAP	National Action Plan
CF	Conservator of Forests	NBAP	National Biodiversity Action Plan
CITES	Conservation on International Trade in Endangered Species of Wild Fauna and Flora	NBWL	National Board for Wildlife
CMO	Chief Medical Officer	NDRF	National Disaster Response Force
CMS	Convention on Conservation of Migratory Species of Wild Animals	NGC	National Green Corp
CrPC	Criminal Procedure Code	NGO	Non-Governmental Organization
CSR	Corporate Social Responsibility	NIRD	National Institute of Rural Development and Panchayati Raj
CVO	Chief Veterinary Officer	NTCA	National Tiger Conservation Authority
CWLW	Chief Wildlife Warden	NTFP	Non-Timber Forest Product
CZA	Central Zoo Authority	NTG	National Technical Group
DFO	Divisional Forest Officer	NWAP	National Wildlife Action Plan
DGP	Director General of Police	OP	Operating Procedures
DLC	District-Level Coordinator	PA	Protected Area
DLCC	District-Level Coordination Committee	PCA	Prevention of Cruelty to Animals Act, 1960
DLMAC	District-Level Advisory and Monitoring Committee	PCCF	Principal Chief Conservator of Forests
DNA	Deoxyribonucleic acid	PHS	Public Health and Sanitation
DPSIR	Drivers-Pressures-State-Impact-Response	PMFBY	<i>Pradhan Mantri Fasal Bima Yojana</i>
EDC	Eco-Development Committee	PRI	Panchayati Raj Institutions
EF	Evergreen Forests	PRT	(Community) Primary Response Team
EIA	Environmental Impact Assessment	REDD+	Reducing Emissions from Deforestation and Forest Degradation plus
EPA	Environment (Protection) Act, 1980	RFO	Range Forest Officer
ESZ	Eco-Sensitive Zone	RRT	(Division/ Range) Rapid Response Team
FCA	Forest Conservation Act, 1980	SAP	Strategy and Action Plans
FD	Forest Department	SACON	Salim Ali Centre for Ornithology and Natural History
FRA	Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Rights) Act, 2006	SBWL	State Board for Wildlife
GIS	Geographical Information System	SCH	Schedule
GIZ	<i>Deutsche Gesellschaft für Internationale Zusammenarbeit</i>	SDG	Sustainable Development Goals
GPS	Global Positioning System	SDRF	State Disaster Response Force
GRS	Grassland	SEA	Strategic Environmental Assessment
HoFF	Head of Forest Force	SEF	Semi-evergreen Forests
HWC	Human Wildlife Conflict	SFD	State Forest Department
HWLW	Honorary Wildlife Warden	SIRD	State Institute of Rural Development SHG Self-Help Group
HQ	Head Quarter	SLC	State-level Coordinator
IFA	Indian Forest Act, 1927	SLCC	State-level Coordination Committee
IGNFA	Indira Gandhi National Forest Academy	SOP	Standard Operating Protocol
IUCN	International Union for Conservation of Nature	SWG	Special Interest Working Group
JFM	Joint Forest Management	TNA	Training Needs Assessment
LPG	Liquified Petroleum Gas	ToR	Terms of Reference
LULC	Land Use Land Change	UoI	Union of India
LWS	Local Wildlife Squad	UT	Union Territories
MAP	Management Action Plan	VFC	Village Forest Committee
MDF	Moist Deciduous Forests	WHO	World Health Organization
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act	WII	Wildlife Institute of India
MLA	Member of Legislative Assembly	WLS	Wildlife Sanctuary
MoEFCC	Ministry of Environment, Forest and Climate Change	WLPA	Wildlife (Protection) Act, 1972



Executive Summary

The National Human-Wildlife Conflict Mitigation Strategy and Action Plan (HWC-NAP) for India is a guiding document facilitating a holistic approach to mitigate human-wildlife conflict (HWC), in an inclusive and sustainable manner.

The HWC-NAP presents an opportunity and framework to mainstream HWC mitigation in policies, plans and programmes of the forest sector and other sectors and, at all levels of governance (national, state and local), to ensure harmonious co-existence and overall well-being of humans and wildlife, conservation of ecosystem services and sustainable economic development. This approach is consistent with Indian tradition of living in harmony with nature, the Vision for New India @75 and the 2030 Agenda for Sustainable Development.

The HWC-NAP is built on systems thinking aimed at holistically addressing the 'Drivers-Pressures-State-Impact-Response'. The HWC-NAP has five strategic priorities: addressing the drivers; reducing the pressures; data and information for decision making and rapid response; reduction of impacts on human and wildlife; and strengthening of institutional and financial structures for effective implementation. These priorities are complemented by 24 strategic goals, 88 desired results and achievements (at the outcome and outputs levels), and 56 indicators designed to measure progress (at process, output and impact levels).

The preparation of HWC-NAP has followed a four-year long consultative, participatory and an inclusive process, facilitated under the Indo-German Project on HWC Mitigation. Taking a blended bottom-up and top-down approach, a core group of experts drafted the document, with feedback and inputs from field practitioners and thematic experts, via a series of workshops, group consultations, meetings, review of existing documents and cases, as well as pilot testing of the concepts included in HWC-NAP.

Given that HWC mitigation is a complex issue and it will take time to set up the mechanisms for monitoring, personnel and processes, the first phase of the implementation (2021-2026) would serve as a capacity development phase. This phase will also be critical for states in setting up the mechanism and processes for development of state HWC strategy and action plans. They will also be creating enabling environment at state-level through State HWC Mitigation Strategy and Action Plan (HWC-SAP), and division-level HWC Management Action Plans (HWC-MAP), aligned with the national plan. Institutional structures such as National HWC Mitigation Forum, State-level Coordination Committees (SLCC), landscape-level HWC forum, District-level Coordination Committee (DLCC) will play active roles in bringing in the required cross-sector and inter-agency coordination, for effective implementation of the HWC mitigation plans and guidelines.

The HWC-NAP is supported by four supplementary frameworks: Supplementary Framework on Establishment and Capacity Development of HWC Mitigation Response Teams; Common Framework for Developing State Human-Wildlife Conflict Strategy and Action Plans: A Coordinated Approach towards Mitigating Human-Wildlife Conflict in India; Common Framework for Developing Division-level HWC Management Action Plans: A Coordinated Approach towards Mitigating Human-Wildlife Conflict in India; Supplementary Framework: Legislative Framework for National Human-Wildlife Conflict (HWC) Mitigation Strategy & Action Plan.

Also, the following issue-specific and species-specific guidelines are being developed, to provide focussed guidance: Forest-Media Cooperation; Occupational Health and Safety; Crowd Management; Medical Emergencies; Guidelines for Mitigating Human-Elephant, -Leopard, -Gaur, -Snake, -Crocodile, -Macaque, -Wild Boar, -Bear, -Bluebull, -Blackbuck conflict. To facilitate effective and efficient implementation of the HWC-NAP, an Implementer's Toolkit will be developed.



1. Background

Biodiversity is fundamental to sustain ecosystem processes, functions and the continued delivery of ecosystem services, which are the foundation of livelihood security, health and overall well-being of human societies. Conservation of biodiversity, including wildlife, is essential for India, not only because the consequences of biodiversity loss and the resulting loss of ecosystem services have a far-reaching impact on livelihoods and overall well-being of human communities, but also to preserve the cultural heritage in areas where co-existence is the natural way of living.

This situation in India, however, is changing. Increasing human population and consequent demand for natural resources is leading to degradation and fragmentation of natural habitats, thus creating a situation where the humans and wildlife are competing for the same resources. Human-wildlife conflict brings economic losses to the tune of millions of rupees to the local communities living on the forest fringes in India every year. The increasing frequency and intensity of crop damage and the emotional trauma attached, especially to cases of injury or death of humans or livestock, are making the communities less tolerant to wildlife.

This shift from 'co-existence' to 'conflict' has the potential to undermine the existing and future conservation efforts, and also hinder achievement of both global Sustainable Development Goals (SDG), and national development goals.

Human-wildlife conflict refers to the negative interaction between humans and wild animals, leading to adverse impacts such as injury or loss of human lives, crop, livestock and other properties, or even their emotional well-being, and equally negative impacts on wild animals and or their habitats.

HWC often involves several wildlife species that are recognised as keystone and umbrella species and provide immensely valuable ecosystem services. Thus, the removal of individuals of such species due to HWC, would change the ecosystem structure and resulting ecosystem services in an irreparable manner, leading to loss of livelihood opportunities for the most vulnerable sections of human society, including rural poor and women.

Keeping in mind that issues of HWC arise due to conflicting needs that are expressed in different dimensions, efforts will be made to consider that both humans and wildlife will be protected from conflicts, taking a balanced and 'harmonious co-existence' approach. An inclusive and holistic approach will be taken, addressing the issue of HWC from three angles. Firstly, by addressing the drivers and providing a conducive environment through policy-making and cross-sectoral cooperation. Secondly, by effective use of instruments, traditional knowledge and modern technology for preventing incidents of conflict. Thirdly, by reducing the impact of HWC, on both humans and wildlife, by way of compensation and awareness creation.

HWC mitigation refers to the interventions to reduce the negative impact of human-wildlife interaction on humans or their resources and on the wildlife or their habitats; it includes strategies to address the drivers and pressures of conflict, reducing the vulnerability of humans and wildlife, and institutional capacity development

2. Purpose, Vision, Mission and Guiding Principles

Purpose and Scope

The purpose of the National Human-Wildlife Conflict Mitigation Strategy and Action Plan for India (HWC-NAP) is to facilitate a common understanding and consensus among key stakeholders, on key approaches and possible solutions for mitigating HWC in India.

The HWC-NAP is a comprehensive, holistic and inclusive way of planning, implementing and monitoring measures for HWC mitigation at the national, state and local-level. It sets out the guiding principles, strategic priorities, main goals, and expected outcomes. It will provide guidance on implementation, monitoring and evaluation for ensuring effective and efficient HWC mitigation in India. The HWC-NAP includes tools and mechanisms to bring together all relevant stakeholders for vertical as well as horizontal coordination to address the complex issue of HWC by defining common goals, assigning responsibilities, establishing a clear timeline, and a set of indicators to measure performance, progress and impact, using a harmonious co-existence approach, in an inclusive manner.

HWC-NAP will facilitate linkages with other national strategies and priorities and provide anchoring points for developing potential synergies and avoiding potential trade-offs with other government objectives and plans. HWC-NAP will serve as a guiding framework for the states and divisions to adopt and formulate their own state-level HWC Mitigation Strategy and Action Plans (HWC-SAPs), and division-level HWC Management Action Plans (HWC-MAPs) incorporating state-specific and regional concerns.

Vision

Humans and wildlife in India are living in harmonious co-existence and are well protected against the negative impacts associated with HWC.

Mission

To mitigate HWC in India, by addressing its drivers and pressures, managing knowledge and information, and facilitating capacity development of key actors, for clear assessment of the situation and reducing the negative impacts of conflict on humans as well as on wildlife, with effective engagement of key stakeholders.

Guiding Principles and Approach:

► **Harmonious co-existence:**

Both humans and wildlife will be protected from conflicts, while maintaining the balance between the needs of humans and the conservation of nature. All efforts should be made to ensure that the site-specific mitigation measures are developed, assessed, customized implemented and evaluated, on the basis of effectiveness and wildlife-friendliness.

► **Holistic approach in addressing Human-Wildlife Conflicts by considering the thematic triangle of - addressing the driver and pressures - taking measures for prevention - taking measures to reduce the damage**

Addressing the drivers and providing a conducive policy environment, through policy-making and cross-sectoral cooperation, i.e. actions that halt or prevent the creation of new HWC situations or the escalation of existing ones; Effective use of instruments, traditional knowledge and modern technology for preventing the incidents of conflict, i.e. actions to contain, minimize or resolve existing problems; and Reduction of impact of HWC on both humans and wildlife, by using effective economic, communication and cooperation instruments, i.e. actions that deal with the impact of any residual or unavoidable conflict incidents.

► **Landscape approach**

It would be important to look at the larger landscape while developing HWC mitigation measures, as some species disperse over very large areas. Recognizing that unless comprehensive and integrated HWC mitigation plans are implemented over several forest divisions across the landscape, the problem is likely to only shift from one place to another. Therefore, a landscape approach will be taken while formulating solutions for mitigating HWC to ensure sustainable solutions.

► **Participatory approach to plan, develop and implement HWC mitigation measures:**

Planning, development and implementation of HWC mitigation plans and measures will involve key sectors and stakeholders at national, state and local levels. The process of stakeholder engagement will follow a systematic approach to ensure that they play an effective role in decision-making. Stakeholders' views will be adequately reflected in the design and implementation of mitigation measures. The HWC mitigation plans and measures will be sensitive to the special needs of vulnerable sections, such as economically weaker sections of the society in rural and urban areas, and the youth. The concerns of women will be specifically addressed.

► **HWC-NAP as a capacity development tool**

Focus will be on addressing the capacity development needs of key stakeholders, to facilitate their contributions in implementing HWC-NAP. A detailed implementation framework and robust monitoring plan will ensure that HWC-NAP facilitates capacity development of the managers and system of HWC mitigation in India, through identification of key capacity gaps at each step i.e., addressing the drivers and pressures, status monitoring through data and information, and reduction of impact on humans and wildlife.

► **Alignment with other processes and plans:**

All efforts will be made to forge linkages with plans and guidelines of key relevant sectors for enhancing synergies and eliminating trade-offs.

3. Conceptual Framework for Strategic Planning for HWC Mitigation in India

HWC is a multi-faceted challenge, and thus requires an integrated and holistic strategic plan to find ways of mitigation. The conceptual framework, on which the HWC-NAP is built, works under the assumption that systems are never static. In fact, systems are evolutionary, and can continuously change, adapt and respond to inevitable changes and recurring events. This 'systems thinking' enables us to find the root causes of a problem, rather than only treat its symptoms, and thus can be helpful to perceive new opportunities. The HWC-NAP uses the concept of Drivers-Pressures-State-Impact-Response (DPSIR) as the basic conceptual framework (Figure 1).

Anthropogenic and ecological drivers of HWC lead to increased pressures on landscape features, with consequences to the state of both, wildlife and humans. These changed situations generate negative impacts on the livelihoods and well-being of humans, as well as on the existence of wildlife species. It is these negative impacts on both, humans and wildlife, which indicate a need for response.

As HWC is a multidimensional problem, these responses need to be holistic, addressing all dimensions of the problem, from following five angles: addressing the drivers, reducing the pressures, assessing the situation, reducing the impact on humans and wildlife, and developing institutional, human and financial capacities for effective implementation.

Furthermore, the responses need to be well-informed and backed by appropriate financial means and operational infrastructure, strong organisational capacity and cooperation partners. Strategically aligned national, state and local policies build the basis for efficient responses.



Harmonious Coexistence is defined as a dynamic but sustainable state in which humans and wildlife adapt to living in shared landscapes, with minimum negative impact of human-wildlife interaction on humans or on their resources and on the wildlife or on their habitats. The mitigation measures designed using this approach maintain a balance between the welfare of animals and humans where both are given equal importance. Overlap in space and resource use is managed in a manner that minimizes conflict.



Figure: 1 HWC-NAP conceptual framework of Drivers-Pressures-State-Impact-Response

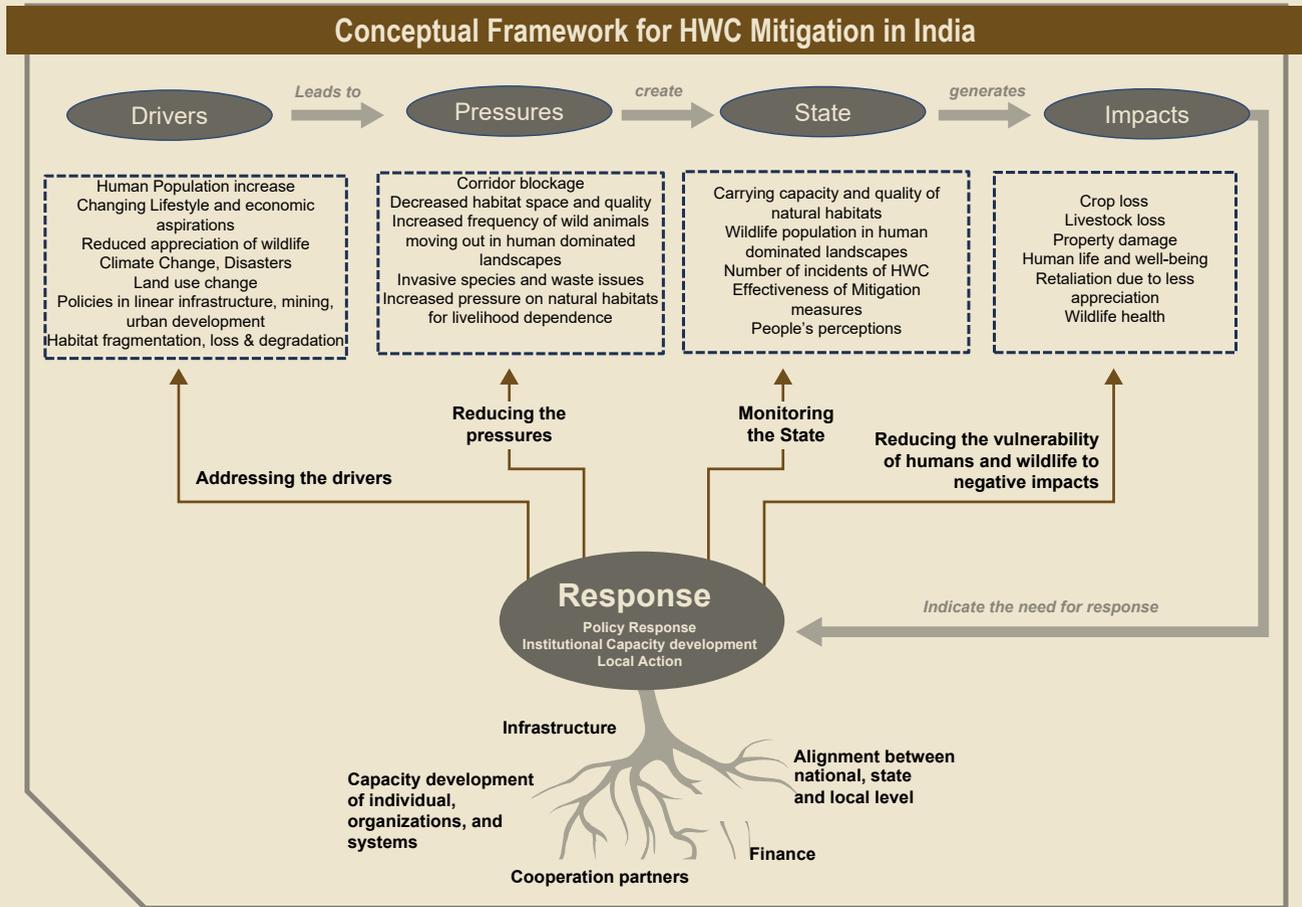




Table: 1 Strategic Framework for HWC Mitigation in India: Priorities and Goals of HWC-NAP

Strategic Priority	Strategic Goal
Strategic Priority A: Addressing the key drivers of HWC in India	Goal 1: HWC mitigation is integrated into overall development planning as well as programmes, plans, policies and legislations of key relevant sectors
	Goal 2: All development activities are sensitive to potential HWCs
	Goal 3: Comprehensive and integrated land use planning ensures that wildlife habitats are protected from loss, fragmentation and degradation
	Goal 4: Humans are enabled in working on their risk perception, improving their tolerance and enabling co-existence with wildlife in the same landscape
Strategic Priority B: Reducing the direct pressures that lead to conflict situation	Goal 5: Critical wildlife corridors, migratory routes and movement paths of key wildlife species-in-conflict, are identified, assessed and secured
	Goal 6: Livelihood dependence of humans on protected areas, corridors, forests and other natural habitats is reduced
	Goal 7: Incidences of wild animals entering or co-occurring in human-dominated areas are reduced, by applying, <i>inter alia</i> technological innovations, effective and wildlife-friendly preventive measures
	Goal 8: Efficient and effective response teams are developed in each forest division and protected areas at the HWC hotspots in India
	Goal 9: Wildlife habitat within protected areas and forests is restored
	Goal 10: Sustainable waste management and HWC-safe food storage in and around protected areas, and at HWC hotspots
Strategic Priority C: Making available information and data on HWC to decision-makers and field response teams, for effective mitigation	Goal 11: Wildlife research in the country addresses critical issues related to HWC mitigation
	Goal 12: Effective, wildlife-friendly and evidence-based HWC mitigation measures are designed, implemented and customized for site-specific needs
	Goal 13: A national database facilitates assessment and monitoring of HWC situation and formulation of most effective HWC mitigation measures in the country
	Goal 14: States, agencies and other stakeholders systematically share information, experiences and knowledge with each other, to co-create long-term solutions on HWC mitigation
Strategic Priority D: Reducing the negative impacts of HWC on humans and wildlife	Goal 15: Reduced vulnerability of humans
	Goal 16: Reduced vulnerability and enhanced occupational health and safety of field teams responsible for HWC mitigation
	Goal 17: Reduced vulnerability of wild animals through animal welfare measures
	Goal 18: Most vulnerable sections of the society, such as economically weaker groups, youth and women participate in planning, development and implementation of mitigation measures
Strategic Priority E: Effectively implementing the national, state and local HWC mitigation plans, by strengthening financial and institutional structures	Goal 19: Institutional capacities in forest and other key relevant sectors are strengthened, for effective implementation of HWC mitigation in the country
	Goal 20: Individual competencies in forest and other key relevant sectors, including frontline staff, <i>mahouts</i> and daily wage workers are strengthened
	Goal 21: State-level HWC Mitigation Strategy and Action Plans (HWC-SAP) are developed, implemented and regularly updated in all states and Union Territories of India, taking a landscape approach.
	Goal 22: Division-level HWC Management Action Plans (HWC-MAP) in all states and Union Territories of India are developed, implemented and regularly updated
	Goal 23: Finance and infrastructure is available for implementing national, state and divisional plans
	Goal 24: Measures are in place for fostering partnerships between key stakeholders, for sustainability and greater outreach in HWC mitigation efforts



4. Strategic Priority A: Addressing the Key Drivers of HWC in India



Strategic Goal 1:

HWC mitigation is integrated into overall development planning as well as programmes, plans, policies and legislations of key relevant sectors.

Integrating HWC concerns into key relevant sectors such as agricultural, linear infrastructure, rural development, Panchayati Raj, urban development, tourism, power, energy mining, etc., is crucial to ensure that activities of these sectors do not lead to situations that result in HWC.

Use of Strategic Environmental Assessment (SEA) can be explored in identifying specific programmes and activities that might result in increasing the conflict or negatively affect HWC mitigation efforts. SEA can also help in identifying areas where synergies may be possible across sectors and departments. Two areas where more detailed studies and joint working is important, are climate change and disaster management. Operational synergies need to be achieved with the disaster management measures, especially with regard to aligning the HWC mitigation plans and disaster management plans at district/division levels, use of disaster relief funds to compensate for negative impacts of HWC, and joint efforts in capacity development of field response teams of forest, disaster management, civil defence, home guards, and police are required. It is also important to mainstream the topic of HWC mitigation into the ongoing discussions and processes on development and biodiversity conservation, such as SDGs implementation and Post-2020 biodiversity agenda.

Understanding and assessing the underlying drivers of HWC for each landscape is the crucial first step towards prioritizing the sectors and programmes into which HWC mitigation needs to be integrated, at regional and state levels. States will be encouraged to identify, assess and systematically monitor key drivers of HWC. For long-ranging species like elephant and tiger, the national project directorates will conduct landscape and regional level assessment, and monitoring of the drivers and pressures, to be used for policy support.

To achieve the true potential of cross-sectoral and cross-stakeholder cooperation, a systematic approach will be taken, by ensuring that cooperation is institutionalized. Efforts will be made to facilitate dialogue between key sectors and stakeholders, to find common solutions for HWC mitigation, and to technically support key sectors and stakeholders in adopting wildlife-friendly production and processes. A specialised unit at the central level will be established, in the form of a 'HWC Mitigation Cell' anchored in the Wildlife Division of the Ministry of Environment Forest and Climate Change (MoEFCC). A National HWC Mitigation Forum, coordinated by this Cell, will ensure effective and regular coordination and dialogue. States will constitute State-level Coordination Committees (SLCCs), and district-level Coordination Committees (DLCCs) to strengthen inter-agency and cross-sector cooperation

Table 2: Desired results and achievements under Strategic Goal 1

Goal	Desired Results & Achievements	Responsible Institutions
Goal 1: HWC mitigation is integrated into overall development planning as well as programmes, plans, policies and legislation of key relevant sectors.	National HWC Mitigation Cell is established	MoEFCC
	National HWC Mitigation forum and Working Groups are established to ensure effective coordination and dialogue among key relevant agencies	MoEFCC
	State-level Coordination Committee (SLCC) in each state is established, along with district-level Coordination Committees (DLCCs) at HWC hotspots	SFDs
	Consultative processes with key relevant ministries and agencies have facilitated the integration of HWC mitigation concerns into overall and sectoral development plans, policies and programmes	MoEFCC, Relevant Ministries, Departments and agencies of Government of India
	Extent and magnitude of drivers and pressures leading to HWC in key landscapes and states are identified, systematically monitored and addressed	SFDs, Project Elephant, National Tiger Conservation Authority
	Collaborative initiatives, involving key sectors and stakeholders, contribute to results and achievements of other goals and exhibit a positive trend in HWC mitigation in the country	MoEFCC, SFDs

Strategic Goal 2:

All development activities are sensitive to potential HWCs

At the local-level, environmental impact assessments (EIA) of projects will specifically identify the extent and magnitude of HWC that may arise or get escalated as a result of the proposed activities and will build in measures to prevent and/or mitigate the HWC impacts, if any. Even for the projects and activities where EIA is not mandatory, such as activities consisting of large-scale plantations, resource extraction projects, linear infrastructure projects, activities under rural development schemes and urban development plans etc, Article 48A (Protection and improvement of environment and safeguarding of forests and wildlife) and Article 21 (Right to life and personal liberty) of the Indian Constitution would require all projects to assess and address any adverse impacts that the project can precipitate on wildlife and humans, in the form of blocking the movement of wild animals in a larger landscape, causing displacement of wildlife through

disturbances and reducing habitat quality, fragmenting the existing habitat and/or inhibit the movement of wild animals and leading them to venture into new areas nearby, creating newer conflict situations etc.

The proposal and appraisal reports of all development projects, whether by infrastructure development agencies or other development or environment programmes and projects, will need to have a dedicated section addressing the possibility of origin/escalation of HWC due to the project. A compilation of all such experiences and good practices can be incorporated into a HWC database, and made available to implementers.

Support from the central government can be sought to safeguard such critical HWC hotspots¹, under Section 3 of the Environment (Protection) Act 1986.

Table 3: Desired results and achievements under Strategic Goal 2

Goal	Desired Results & Achievements	Responsible Institutions
Goal 2: All development activities are sensitive to potential human wildlife conflicts	Impact pathways and mechanisms of change, with regard to the impact of projects and other development activities on HWC, are documented and recommendations have been formulated	MoEFCC, SFDs
	A compilation of experiences and good practice on the use of EIA for mitigating HWC is available	MoEFCC
	All proposals and appraisal reports by all development projects, whether by infrastructure development agencies or other development or environment programmes and projects include a section on HWC mitigation	MoEFCC

¹ "HWC Hotspots" are areas with actual or predicted repeated occurrence of HWC incidents resulting in crop-loss, livestock death, human death and injury, wildlife death and injury over temporal and spatial scales. It can be static (repeated in the same place or time) or dynamic (shift in space and time over years). In addition to count statistics, the magnitude of the incidents is subjected to interpolation or extrapolation techniques to define the hotspots in space and time.

Strategic Goal 3:

Comprehensive and integrated land use planning ensures that wildlife habitats are protected from loss, fragmentation and degradation.

A key factor driving HWC is human population growth and the resulting increase in natural resources requirements of humans. This gradually transforms natural habitats into human settlements and agricultural lands. Unsustainable use of natural resources and lack of integrated land-use planning may result in degradation of habitat and subsequently reducing its carrying capacity. Furthermore, habitat fragmentation results in restriction of wildlife movement, often leading to a situation of deflected animal movement to new territories, thereby creating new conflicts.

Land use/land cover (LULC) change affects the provision of ecosystem services for humans, and habitat for wildlife. Hence, it is crucial to monitor LULC around all forested landscapes and particularly around HWC hotspots.

Potential impacts of climate change on habitats and movement of key species-in-conflict, would need to be anticipated, assessed, and integrated into carrying capacity assessments that form the basis for all management interventions.

Table 4: Desired results and achievements under Strategic Goal 3

Goal	Desired Results & Achievements	Responsible Institutions
Goal 3: Comprehensive and integrated land use planning ensures that wildlife habitats are protected from loss, fragmentation and degradation	Land-use land-cover change analysis, around HWC hotspot conducted in cooperation with key sectors and stakeholders, with regard to its impact on HWC, is available in each state	SFDs, Ministry of Housing and Urban Affairs, Ministry of Rural Development
	Carrying-capacity assessments integrate climate change impact models	SFDs

Strategic Goal 4:

Humans are enabled in working on their risk perception, improving their tolerance and enabling co-existence with wildlife in the same landscape.

Risk or threat perception by humans is influenced by several factors, including cultural values, histories and ideologies, knowledge of animal behaviour, novelty of risk and several other factors. Awareness and information on animal behaviour, how to safeguard oneself, and an appreciation of the landscape will encourage behaviours among humans that will change their risk perception, reduce exposure of humans to wild animals, and thus reduce the conflict. The enhanced awareness among community members will also facilitate their engagement in community-level emergency response and other mitigation measures. Community can also support in information management on animal movement, and support during emergency situations, through helplines.

Information and knowledge about the ecosystem services provided by wildlife, animal behaviour, and the impact wildlife and humans have on each other, needs to be integrated into school and university curricula.

Simultaneously, a systematic plan will be put in place to further strengthen the capacities of the teachers

for effectively implementing courses and activities on HWC mitigation, leading to desired learning outcomes. National Green Corps (NGC) can play an important role in institutionalizing this knowledge.

Media is a key stakeholder that can play a significant role in taking the desired message on HWC mitigation to the public. Even though over the last decade, there has been a shift to issue-oriented media coverage, the media largely covers HWC only when an incident occurs. Constructive dialogue between wildlife managers and media professionals, agreement on guidelines, and identification of anchoring points for engaging media as partners in HWC mitigation, will be a priority.

Civil society institutions working with the local community will be engaged as partners, to facilitate achievement of goals set by this plan. A 'Working Group on HWC Mitigation Communication' will be established for implementing the communication strategy at the national-level.

Table 5: Desired results and achievements under Strategic Goal 4

Goal	Desired Results & Achievements	Responsible Institutions
Goal 4: Humans are enabled in working on their risk perception, improving their tolerance and enabling co-existence with wildlife in the same landscape	A communication strategy at national and states level is operationalized, to facilitate dissemination of HWC relevant information to key stakeholders, using innovative and effective communication tools	MoEFCC, SFDs, NGOs
	Integrating awareness and understanding of wildlife behaviour and ecosystem services that wildlife provides, into national educational curricula	MoEFCC, National Working Group on HWC Mitigation Communication
	Well-functioning helplines in HWC hotspots, to provide and receive information on animal movement, and support during emergency situations	SFDs
	Systematic engagement between media and wildlife managers, to bring media on board as a strategic partner in raising awareness on behaviour of conflict-prone wildlife species, and other HWC mitigation approaches	MoEFCC, National Working Group on HWC Mitigation Communication



5. Strategic Priority B: Reducing the direct pressures that lead to conflict situation



Strategic Goal 5:

Critical wildlife corridors, migratory routes and movement paths of key wildlife species-in-conflict are identified, assessed and secured.

Movement across their habitat to meet their ecological and reproductive needs is an integral part of animals' survival strategy. When natural movement is disrupted by fragmentation and breaking of corridors, animals migrate beyond natural landscapes into human-use areas, which results in HWC. Maintaining a well-connected landscape is critical for long-term wildlife conservation and HWC mitigation in India. Securing wildlife corridors, migratory routes and movement paths of wildlife species, particularly those in conflict, is critical and will be one of the priorities.

Corridors will need to be identified for key long-ranging species, in addition to recognized ones, assessed and mapped on a GIS platform to understand their ecological role, and their specific role and relevance to HWC mitigation. Further, threats to the long-term viability of these corridors will be identified. Accordingly, management plans, including a system and mechanism for regular monitoring and reporting of corridors, are established for these corridors, and will be developed and integrated into HWC-SAP, and other similar documents of the states, taking a landscape approach.

In areas where regular movement of large mammals through non-forest areas leads to conflict, instruments such as Memoranda of Understanding (MoU) with the concerned landowners/communities, purchase of land by forest department in critical bottleneck areas, land swaps, establishment of Community and Conservation Reserves, heritage sites etc., will be explored to secure wildlife passage. Additional appropriate legal provisions can also be explored in this regards.

Securing corridors becomes critical in light of the predicted impacts that climate change may have on natural habitats. The resulting impediments to animal movements through the habitat matrix may lead to enhancement of HWCs. In this context, the guidelines issued by WII- MoEFCC (WII, 2016)² provide for possible solutions, including creation of underpasses, overpasses, etc., that can be adopted by the infrastructure development agencies. This will apply when creation of such structures in the habitats becomes inevitable, to prevent fragmentation. Undertaking all infrastructure in the shortest possible time, is a critical requirement for projects in forest habitats, and must be monitored and ensured at highest level.

Table 6: Desired results and achievements under Strategic Goal 5

Goal	Desired Results & Achievements	Responsible Institutions
Goal 5: Critical wildlife corridors, migratory routes, and movement paths of key wildlife species-in-conflict are identified, assessed and secured	Critical corridors for key long-ranging wildlife species are identified, assessed, prioritised and mapped on a GIS-based platform linked to the national database	MoEFCC, SFDs
	A system and mechanism for regular monitoring and reporting of corridors is established	SFDs
	Use of innovative instruments to secure corridors are discussed and operationalized	SFDs
	Use of eco-friendly measures for mitigation of linear infrastructure projects to be implemented.	SFDS

² https://moef.gov.in/wp-content/uploads/2019/07/eco_friendly_measures_mitigate_impacts_linear_infra_wildlife_compressed.pdf

Strategic Goal 6:

Livelihood dependence of humans on protected areas, corridors, forests and other natural habitats is reduced.

While sustainable use of natural resources generally does not pose a significant ecological problem, over-extraction due to rising demands of a growing human population and insufficient regulation mechanisms causes degradation of such wildlife habitats. A degraded and disturbed wildlife habitat, in turn, decreases the carrying capacity for wildlife species, which may lead to wildlife searching for food outside of their natural habitat, resulting in HWC, in some instances. Reducing the anthropogenic pressure on natural habitats, particularly in HWC hotspots, is important for the safety of humans and the welfare of wildlife. However, a fair balance needs to be provided, particularly for groups and individuals lacking alternative resources.

The economic losses sustained by communities due to HWC, need to be compensated, not only by the *Ex gratia* received from the government, but also by increased livelihood opportunities, through the poverty alleviation schemes and alternate income generation initiatives. HWC-safe livelihoods³, developed through education and skill improvement, will open better employment opportunities. Furthermore, value addition to existing produce (farm or forest-based) will improve incomes, without increasing extraction. The introduction of high yield hybrid cattle is expected to minimize or eliminate (where stall-fed) grazing pressure in native wildlife habitats while ensuring higher economic returns. The Animal Husbandry department would need to formulate and implement special plans for improved stall-fed farm animal stock and practices, especially in the HWC hotspots.

Alternate fuel sources such as Liquefied Petroleum Gas (LPG) or kerosene, or fuel-efficient stoves, will reduce or minimize fuelwood extraction. At the same time, these also address reducing exposure of rural women and young children to kitchen smoke, which is one of the biggest causes of poor health and mortality in rural women.

The Joint Forest Management Programme (JFM) in India, initiated in 1990, has influenced the agrarian economy towards sustainable management of resources. The community institutions created in fringe-forest villages such as Village Forest Committees (VFCs), Eco Development Committees (EDCs) and watershed committees will be engaged in efforts to mitigate HWC.

The forest-dweller groups and local communities participating in JFM, having customary rights for use of natural resources as an integral part of their cultural identity, need special attention and protection. Community-based institutions, government institutions, private sector etc involved in community development (Education, Tribal, Rural, Agriculture and Animal Husbandry, MGNREGA, Health, Small-Scale and Cottage Industries, Micro-finance agencies, etc.) will be engaged cohesively by the forest departments, to bring about synergies that benefit socio-economic development of forest-dependent communities, in a manner that minimizes their dependence of forests, by simultaneously providing both better livelihood and resource alternatives.

Table 7: Desired results and achievements under Strategic Goal 6

Goal	Desired Results & Achievements	Responsible Institutions
Goal 6: Livelihood dependence of humans on protected areas, corridors, forests and other natural habitats is reduced	Rural forest-dependent communities are facilitated through inter-departmental coordination to practice HWC-safe livelihood options, access alternative fuel sources, and use improved animal husbandry practices	SFDs, State Rural Development Department and Panchayati Raj Institutions (PRIs), NGOs, Department of Animal Husbandry and Dairying
	Cooperation between forest and rural development training institutions facilitates capacity development of women Self-Help-Groups and youth in the villages around HWC hotspots, to enable these forest-dependent populations to find alternate HWC-safe options.	SFDs, SIRDs, NGOs
	Convergence with MGNREGA and other similar schemes is facilitated for establishing and maintaining community-based HWC mitigation measures.	SFDs, Department of Rural Development, PRIs

3 "HWC-safe livelihoods" are livelihoods that are not negatively impacted by presence of wild animals in the landscape.

Strategic Goal 7:

Incidences of wild animals entering or co-occurring in human-dominated areas are reduced, by applying, *inter alia* technological innovations, effective and wildlife-friendly preventive measures.

Species-specific and issue-specific guidelines and Implementer's Toolkits, will be developed and field tested in a participatory manner, and all HWC mitigation measures will be implemented in compliance with these guidelines.

A key focus will be set on preventing HWC incidents by the use of early warning and rapid response system, coupled with barriers and deterrents, where conflict is more severe.

In general, intervention by a response team is triggered by an incidence of either sighting of a wild animal in human use area, or injury/ death to humans or livestock, or crop damage. While this approach has been effective in managing the situation at an operational level, the negative impacts due to HWC incidences result in economic losses, and cause a change in people's perception, eventually leading to negative perception and retaliation towards wildlife. Therefore, the early detection of risk is the most crucial aspect of any HWC mitigation strategy.

A paradigm shift is needed to invest and innovate in prevention measures and efficient emergency response. The first step in this direction is to strengthen the capacities of the field teams, to enable them to receive early information on the accidental movement of animals near human-use areas, identify at-risk locations, work towards establishing prevention measures, as well as informing potentially vulnerable humans to take appropriate precautionary measures.

Such an 'Early Warning and Rapid response System' will be established in each forest division and protected area of the country, at HWC hotspots. A strategy for stakeholder engagement, supported by use of technology, will be used to create early warning systems. For this, satellite telemetry using radio/satellite collars, drones, seismic waves, infrared technology, temperature and movement sensors and other systems for tracking movement of wildlife in and around hotspots need to be systematically explored for their varied applications. Their effectiveness as early warning instruments need to be enhanced, along with a system of robust response teams.

Another key intervention is to enable local communities and selected individuals to monitor and report the movement of animals, to ensure that the first response

is initiated at the first subtle sign of an impending conflict situation, and negative impacts are prevented. So, specific warning alerts to potentially vulnerable people through bulk messaging or through FM Radio/ community radio/ local TV channels, etc will be broadcasted. This may also provide help to enforcement agencies in combating wildlife crime, in the form of community surveillance. Engagement of existing institutions such as Civil Defence and Home Guards, in a coordinated manner through the DLCCs, may be explored by the divisions at HWC hotspots for enhanced effectiveness of the response measures, especially for crowd management and handling medical emergencies.

Where barriers are required for regulating the movement of wildlife, the landscape needs to be well studied to understand movement patterns of wild animals and connectivity among the fragmented habitat patches. This will be done to ensure that movement patterns are not compromised by the use of barriers.

Such barriers need not be based on administrative boundaries but rather on landscape features. They need to integrate the knowledge of seasonal and annual movement and ranging patterns of large wildlife species, and also take into consideration the possible adaptations to these by wildlife over time.

A systematic plan and sustainable institutional arrangement, engaging local communities, will be encouraged at landscape-level, to take ownership and to oversee the creation and maintenance of barriers.

Details on the use and design of barriers and deterrents for the various wildlife species-in-conflict will be elaborated in the Implementer's Toolkits. Most of these measures are species-specific, and need to be adapted and adjusted to consider animal behaviour, response of wildlife to different measures used, as well as the ecology, geography and social context of the region. They require careful planning, systematic execution and sustained maintenance. In the absence of these considerations, mitigation measures may have little or no positive impact.

In all situations involving obligatory resource utilisation by wildlife within human-use areas, the primary intervention will focus on a clear assessment of population dynamics of key wildlife species, and habitat

restoration to optimize that habitat to support higher populations of the wild animals. In case of specific situations where habitat restoration cannot solve the problem, population management of wildlife species-in-conflict, in line with the carrying capacity assessments of the associated natural habitat in the landscape, can be considered. This will be done after wider deliberations, as long-term implications of population management are still unclear.

In situations that involve wildlife continuing to live inside human-use areas, it is important to determine the long-term feasibility of conserving the species in such areas, taking into account existing and future changes in resource availability, population growth and possible changes in distribution, behavioural changes, and the options available for effective conflict mitigation. In situations where conservation is possible in such areas, the analysis will identify conflict mitigation measures that protect both the human and wildlife populations. Where conflict mitigation is not feasible, options for removing the animal from that location will be explored, to ensure that such incidents do not exacerbate conflict situation at the location.

In the case of dispersals through human-use areas for ecological or reproductive reasons, the cause for the dispersal needs to be studied. Where animals are dispersing due to habitat inadequacies or local overabundance, these factors would be addressed to stop further dispersal. In situations where the dispersed population has settled into a new habitat, the long-term options and implications for conservation and conflict management will be assessed. Based on this analysis, decisions will be made to either conserve them locally, move them to a better site, or back to the original range.

Assessing the status of past dispersals in terms of conservation gains (present status of dispersed populations) and conflict (loss of human life and crop/property damage; costs of conflict management, and current conflict situation), would be done to get a better understanding of how to deal with similar situations in the future. Where dispersal is due to reproductive reasons (e.g., inbreeding avoidance), close monitoring and early warning can minimize conflict. Options such as aided dispersal (i.e., capture and translocation to a better habitat) can also be attempted in such cases.

Table 8: Desired results and achievements under Strategic Goal 7

Goal	Desired Results & Achievements	Responsible Institutions
Goal 7: Incidences of wild animals entering or co-occurring in human-dominated areas are reduced, by applying, <i>inter alia</i> technological innovations, effective and wildlife-friendly preventive measures	Each HWC hotspot has obtained results of population estimation and dynamics of key species involved in HWC at landscape-level, and monitors the respective populations regularly	SFDs, WII
	Early Warning Systems are established, regularly monitored and updated in each forest division at HWC hotspots	SFDs
	Species-specific and issue-specific guidelines and Implementer's Toolkits, are developed and field tested in a participatory manner, and all HWC mitigation measures are implemented in compliance with these guidelines	MoEFCC, SFDs

Strategic Goal 8:

Efficient and effective response teams are developed in each forest division and protected areas at the HWC hotspots in India.

Since it is often inevitable that wildlife and humans use the same space, an efficient response mechanism for timely action, to prevent and reduce negative impacts of conflict situations, will be most important foundation of HWC mitigation strategy in India.

The types of response teams, their function, roles, composition, and required competencies, will be standardized across all states in the country. This will facilitate effective policy support, knowledge management and resource sharing across divisions and states, and enable overall assessment and monitoring. A tiered system of response teams⁴ will be established, with required equipment and training support, in each division, viz., Rapid Response Team at the division-level (Division RRT), Rapid Response Teams at the range-level in ranges with high conflict (Range RRTs) and community-level Primary Response Teams in villages/ village clusters / wards/ ward clusters / municipalities with high HWC conflict (Community PRTs).

The information management across teams will be coordinated via a HWC Mitigation Hub/ HWC Control Room. As skill and specialized knowledge are necessary for the task, a permanent pool of trained personnel will be maintained in such RRTs. Options will be explored to engage specialised agencies and personnel such as civil defence, home guards, disaster management teams to support the response teams. For better coordination at local-level, cooperation of local body functionaries, such as gram panchayats, can also be sought, through their appropriate legal empowerment, as and when feasible.

Operating Procedures (OPs) on chain of command initiation and clear decision-making tools shall

be developed and agreed with key agencies and departments, to facilitate smooth and efficient communication, within the state forest department (SFD), and with other key actors.

The SLCC, landscape-level HWC Mitigation multi-stakeholder forum and DLCCs will facilitate the involvement and contribution of related departments within the district and local-level, for establishment of RRTs and PRTs. Synergies with the existing systems of field response teams such as disaster response teams, police, civil defence, home guards will be explored. Apart from this, SFDs could also explore the possibility of getting other volunteers engaged in HWC mitigation measures, and get them insured for safety and safeguard.

A dedicated fund shall be created in each state for providing salaries, risk allowances, health and accident insurance for the non-SFD personnel engaged in all the mitigation work. The state/UT may also consider providing 'contingency funds' to Community PRTs for dealing with contingent expenses, in cases of emergency.

A division-level strategy shall be elaborated in the HWC Management Action Plan (HWC-MAP) of respective divisions for the constitution of response teams, their capacity development, operating procedures, work ethics, occupational health and safety, etc.

Supplementary Framework for Establishment and Capacity Development of HWC Mitigation Response Teams provides details on types of response teams, their functions, roles, composition, required competencies and curriculum, and required equipment.

4 Rapid Response Teams (RRTs) are meant to provide specialized response to conflict situations. The RRT at the division-level will have the capacity and equipment to deal especially with use of GIS-based database, use and maintenance of specialised equipment for patrolling and capture of wildlife and have the necessary skills in the team to deal with all HWC situations. Each team will also have a trained veterinary doctor attached to it. These RRTs will deal with the larger issues at the division-level. The RRT at the forest range-level will have personnel trained in different task related to HWC, and will address the regular HWC situations that cannot be handled by the other field staff of the SFD or by community-level PRTs. A key role of range RRT is to closely coordinate with the Community PRTs.

Primary Response Teams (PRTs) are community-driven teams, anchored ideally at panchayats, to provide long-term support in design and maintenance of mitigation measures, awareness measures to address people's perceptions, facilitating effective coordination between forest department, other departments and agencies and local communities, and support the RRTs to manage people in HWC-related emergency situations.

Table 9: Desired results and achievements under Strategic Goal 8

Goal	Desired Results & Achievements	Responsible Institutions
Goal 8: Efficient and effective response teams are developed in each forest division and protected area at the HWC hotspots in India.	Forest divisions establish, by notification, a three-tiered system (division, range and village/ward-level) of response teams with dedicated staff and funds	SFDs
	Competencies-based training is provided to all three levels of response teams, by the state training Institutions, and other accredited institutions in the state, using participatory and hands-on training methods, in a systematic and regular fashion, together with key relevant departments	SFDs
	The SLCC, landscape-level HWC Mitigation multi-stakeholder forum and DLCCs facilitate the involvement and contribution of related departments, in the district and local-level for establishment of RRTs and Community PRTs	SFDs
	Number of incidents of human death, injury and crop/property damage are reduced due to enhanced efficiency and effectiveness of response teams	SFDs

Strategic Goal 9:**Wildlife habitat within protected areas and forests is restored**

To understand the dynamics of the ecosystems, a systematic ecosystem analysis for all HWC hotspots would need to be carried out forming the basis for restoration planning. Of specific relevance would be to map the degradation levels and water availability over time in HWC hotspots. Research institutions can be roped in by the forest departments, where possible, to apply population dynamics models for changing ecosystems, and development of a decision system on these findings for habitat restoration activities within PAs around HWC hotspots.

In cases where vegetation and water augmentation will be used as an instrument for ecosystem restoration, regular monitoring of ecological changes would be done to understand the long-term implications of such measures. The management recommendation ensuing from such analysis would be incorporated into existing Management Plans for PAs, Working Plans for territorial forest divisions, and HWC-MAPs to ensure systematic implementation.

Reduction in native food plants due to an increase in cover of invasive non-palatable plant species has been stated as one of the reasons for wild herbivores to enter human-dominated landscapes, in search of food. Management of prioritized invasive species by 2020 is a national target^{5 6}, Invasive species management will be taken up as an important facet of the HWC mitigation strategy and would be allocated the required attention and resources, for assessment and action for eradication thereof.

Impact assessment and invasive species risk assessment models would be developed to support the implementation process and also to prioritise the sites for invasive species management.

Regular monitoring of invasive species would be done, preferably with the support and engagement of local communities and other stakeholders, including Community PRTs.

Table 10: Desired results and achievements under Strategic Goal 9

Goal	Desired Results & Achievements	Responsible Institutions
Goal 9: Wildlife habitat within protected areas and forests is restored	Protected Area Management Plans and Territorial Working Plans are adapted to integrate scientific assessment and analysis of roles and impact of different habitat elements on population sizes, structures, fertility rates, etc., of key species-in-conflict	MoEFCC, SFDs
	Ecological restoration measures are identified and implemented in each protected area, and other wildlife habitats including prioritized corridors	SFDs
	Ecological integrity in and around protected areas is restored by reducing the influence of invasive species	SFDs

5 National Biodiversity Action Plan. <https://www.cbd.int/doc/world/in/in-nbsap-v3-en.pdf>

6 Post 2020- Global Biodiversity Framework by the Convention on Biological Diversity

Strategic Goal 10:

Sustainable waste management and HWC-safe food storage in and around protected areas, and at HWC hotspots.

Food waste in villages, towns and cities, such as unwanted and rotting fruits and vegetables, kitchen waste and grain crops, as well as poorly secured food stores often lure some species of wild animals. Wild herbivores may occasionally use this food waste, and soon might also become completely reliant on this food source, depending on their health conditions, age and availability of food in their natural habitat. Rhesus macaque, elephant, bear and other generalist herbivores can become habitual visitors to food waste dumps in certain locations, while leopards are widely known to visit dumpsites, to prey on feral pigs, stray dogs and rodents feeding around food waste dumps.

This situation not only increases conflict cases, but by increased interaction between wild and domestic animals, facilitates the spread of zoonotic disease and pathogens between wild animals, livestock, other domestic animals, and sometimes even to humans.

For this reason, waste management practices in areas close to wildlife habitats will be addressed on priority, in close coordination with district administration, urban development department, municipalities, Panchayats,

local universities and institutions and other key actors.

In HWC hotspots, measures towards safe storage of food – especially in villages – will be given a stronger focus.

For ensuring sustainable waste management to mitigate HWC, the role of local governments in rural areas, and hospitality enterprises in urban areas, will be critical for according priority to intervention in this aspect.

Urban and rural development departments, municipalities and Panchayati Raj institutions will be engaged, via multi-stakeholder fora at the national-level, SLCC, landscape-level HWC Mitigation forum and DLCC at the state and local levels, respectively. This will ensure sensitisation and technical support in adopting waste management practices as a top priority in HWC hotspots.

States are encouraged to earmark resources for this purpose, and monitor the efficacy of the efforts, as well as encourage the urban/ rural local bodies to integrate HWC concerns into their proposals for financial assistance.

Table 11: Desired results and achievements under Strategic Goal 10

Goal	Desired Results & Achievements	Responsible Institutions
Goal 10: Sustainable waste management and HWC-safe food storage in and around protected areas, and at HWC hotspots	Cooperation between SFDs and universities and institutions facilitate long-term monitoring of the behaviour of key wildlife species, in relation to food storage and waste in urban and rural areas, and identification of appropriate mechanisms for ensuring reduced pressure due to waste dumps	MoEFCC, SFDs, Universities, research institutions and other educational institutions
	Waste management and HWC-safe food storage plans, implemented by municipalities/ panchayats, in cooperation with local communities, result in reduced incidents of HWC	SFDs, State Rural Development Department and PRIs, State Urban Development Department

**6. Strategic Priority C:
Making available
information and data on
HWC to decision-makers
and field response teams,
for effective mitigation**



Strategic Goal 11:

Wildlife research in the country addresses critical issues related to HWC mitigation.

To ensure effectiveness and efficiency, HWC mitigation, measures need to be based on and customised for the situation on the ground. This includes patterns of interactions, spread and frequency of conflict incidences, interventions and their outcomes, behaviour of the wild animal concerned, profile of the communities affected, and the factors related to their socio-economic circumstances. All interventions and measures would need information and data on these aspects, not only from the forests under the management of the forest department and key species involved in HWC, but from all other wildlife habitats and all HWC hotspots.

Therefore, appropriate information on population trends, habitats and corridors of prominent wildlife species, including preferred foraging and breeding areas, would need to be collected and maintained in all forest divisions. Inclusion of such information in the forest Working Plans, protected area Management Plans would be necessary. Apart from this, each division will develop its HWC-MAP in a participatory manner, to ensure effective inclusion of key departments and agencies in the region in HWC mitigation efforts

To ensure that HWC mitigation-related information is being collected from the field, and the results are used for developing innovative HWC mitigation measures, management-oriented research and regular monitoring will be promoted, at all HWC hotspots.

Special emphasis will be given to department-based research and knowledge management on HWC mitigation. To ensure sustainability of such efforts, cooperation and partnerships will be encouraged between the state forest departments, other departments and agencies, universities, research institutions and training institutions.

Inter- and transdisciplinary research to understand the drivers of HWC, and to monitor their trends in India, are priority. Such studies shall focus on assisting adaptive management strategies for HWC mitigation, and will, among others, integrate wildlife biology and ecology including behaviour, population dynamics and movement of key wildlife species-in-conflict, and their behaviour in human-dominated landscapes; human ecology and social sciences, including people's perceptions and attitudes on HWC and factors influencing such perceptions and attitude; socio-economic research, including long-term social and economic impacts of compensation, *ex gratia* and other mitigation measures; research on immuno-contraception of selected species-in-conflict etc.

The HWC Mitigation Cell at MoEFCC, among other roles, will facilitate in prioritizing key research questions that are critical for mitigating HWC, as well as for long-term advancement of our conceptual understanding of the issue. The prioritized research areas will also be relevant from the viewpoint of provision of research funds from the MoEFCC, other Ministries and agencies. An institutional mechanism to facilitate inter-institutional collaborative research and consortia-based research will be encouraged, and a mechanism will be formulated to appraise, monitor and review such projects, to ensure that results of relevant research are shared across states, and their field implementation is expedited.

India has progressed well in the use of new technology for wildlife research in India, answering several HWC-related questions. However, the information and data coming from such work is scattered, and not consolidated at one place. A mechanism will be set up to consolidate all such information and data under the aegis of the HWC Mitigation Cell, linked to the national database.

Table 12: Desired results and achievements under Strategic Goal 11

Goal	Desired Results & Achievements	Responsible Institutions
Goal 11: Wildlife research in the country addresses critical issues related to HWC mitigation	Key research topics on HWC mitigation are prioritized at national-level and form the basis for research grants provided by relevant ministries and agencies	MoEFCC
	A mechanism is developed in each state to facilitate researchers in conducting inter- and transdisciplinary research on priority management questions on HWC mitigation.	SFDs
	In-house research facilities at the state forest departments are strengthened to undertake basic research and monitoring on HWC, in cooperation with local universities and institutions, to facilitate capacity development of the response teams, as well as to ensure consistency and continuity in data input to the national database	SFDs

Strategic Goal 12:

Effective, wildlife-friendly and evidence-based HWC mitigation measures are designed, implemented and customized for site-specific needs.

At present, HWC mitigation measures are being implemented by various agencies, departments, and individuals, with varying degree of success. Experience shows that there is no single or specific measure that can provide solutions to HWC situation. Hence, optimization of a single or mix of multiple measures is generally recommended. In this context, highly important is a critical assessment of the effectiveness of mitigation measures, and their relative impact on wildlife, to ascertain the applicability of mitigation measures to specific scenarios. Effectiveness of mitigation measures is a result of multiple factors, which would be documented to ascertain the reasons why a specific mitigation measure was successful, or why it failed. A systematic approach will be taken, by collecting all relevant data on such factors, to establish the optimum conditions when a mitigation measure is likely to be most effective. Such assessment shall be based on a rigorous scientific design, which is replicable and comparable in different landscapes, and HWC scenarios.

Whether or not a mitigation measure is harmful for wildlife, will be one of the key criterion while selecting mitigation measures. 'Harmful to wildlife' here implies harm to the population or species rather than to the individual in conflict. To establish the contribution of wildlife to overall development via ecosystem services, and ensure that the mitigation measures are economically viable, studies on economics of HWC mitigation, and studies to develop a methodology for calculating the return on investment is encouraged; to be developed and used during assessment of the respective mitigation measures. Level of acceptance and appreciation of the measure by different stakeholders, particularly the local community, will be an important criterion of success. A criteria for assessing the effectiveness and wildlife-friendliness of mitigation measures will be developed.

Table 13: Desired results and achievements under Strategic Goal 12

Goal	Desired Results & Achievements	Responsible Institutions
Goal 12: Effective, wildlife-friendly and evidence-based HWC mitigation measures are designed, implemented and customized for site-specific needs	A nationally standardized assessment framework is available to assess the effectiveness and wildlife-friendliness of HWC mitigation measures	MoEFCC
	All mitigation measures being planned and implemented, are assessed for their effectiveness and wildlife-friendliness by the SFDs and other agencies, in consultation with key stakeholders, on an annual basis, using the nationally standardized assessment framework	SFDs, Civil Society institutions, Private sector, and individual experts
	Feedback from each division on the design and use of mitigation measures is systematically collected and reviewed at the landscape-level, in the landscape-level HWC Mitigation forum, and consolidated at national-level via a national knowledge platform, to further optimize mitigation measures.	SFDs, Civil Society institutions, Private sector, and individual experts

Strategic Goal 13:

A national database facilitates assessment and monitoring of HWC situation and formulation of most effective HWC mitigation measures in the country.

There is a need for more holistic data that facilitates government and other stakeholders in better understanding the nature and scale of the conflict, developing mitigation measures, and monitoring the success of the mitigation measures. Currently, collected data is only suitable for generating coarse 'heat maps' of conflict (based on the number of compensation claims paid, and number of human deaths and injuries etc) for a few species at the state-level. However, at the national-level, uniform data on the number of conflict cases for most species is not available.

As a first step, data collection parameters and methods will be standardized across states, so that results can be compared across states and landscapes, over time.

A National HWC Mitigation Database would be established so that all states and key agencies can contribute to and have access to the database. The primary aim of this database will be to facilitate information management and strengthen our understanding of the drivers of HWC and effectiveness of the mitigation measures. This is to support evidence-based decision-making for HWC mitigation, including key management issues such as landscape-level planning, by understanding the long-term spatial trends in distribution and status of wildlife species-in-conflict, animal movement, retaliatory killings, crop damage etc., or larger landscape-level impact of local mitigation measures. This database will be hosted on a web-based platform supporting visualization of HWC hotspots and other information, with a differential access system.

A Working Group on 'National HWC Mitigation Database' will be responsible for managing the national HWC database. This group will ensure that data is being collected, stored, analysed and utilized for its intended purpose. Training curricula will be developed for officers and field response teams from key relevant departments and agencies to ensure that data input is efficient. All states will be encouraged to make good use of the national database, to access and analyse information on HWC and mitigation measures, and use this information to support evidence-based HWC management decisions. The data gaps identified by the field teams will be consolidated and shared by the representatives from states, leading to establishment of research priorities for national and state-level wildlife research institutions.

Creation and management of such a database is the first step. Further efforts are needed to ensure that there are avenues and opportunities in place to share qualitative information, as well as explicit and implicit knowledge on managing HWC, among key stakeholders. Mechanisms for data inputs, including real-time inputs where feasible, would be created so that the regularly incoming data improve the quality of information generated from the database. Geographical Information System (GIS) interface will be its integral part, so that dynamics of hotspots and trends of vulnerability are visible and monitored regularly.

Table 14: Desired results and achievements under Strategic Goal 13

Goal	Desired Results & Achievements	Responsible Institutions
Goal 13: A national database facilitates assessment and monitoring of HWC situation and formulation of the most effective HWC mitigation measures in the country	A national HWC database – using a holistic approach – is functional, on a GIS-supported platform, providing a common template to all actors and states, for collecting HWC-related data in the country	MoEFCC
	States have facilitated capacity development measures to ensure that they provide regular and complete information on parameters to the national HWC database, on a periodic basis	MoEFCC, SFDs

Strategic Goal 14:

States, agencies and other stakeholders systematically share information, experiences and knowledge with each other, to co-create long-term solutions on HWC mitigation

Sharing and managing knowledge is a complex process, which would require systematic and sustainable tools and enablers to ensure success. Policymakers, multi-disciplinary experts and practitioners will be facilitated to continuously exchange information on trends, challenges and good practices, with the aim to learn from each other, and to find innovative solutions together.

This will be done through creation of shared spaces for the exchange of ideas and information via cross-sector dialogue, joint trainings, discussion fora, joint publications and other instruments and measures. A web-based national knowledge platform will be created, to provide the anchoring for all discussions and dialogues. This will not only facilitate immediate solutions on critical issues on HWC mitigation, but

will also formulate recommendations for the revision processes of the HWC-NAP, guidelines and HWC-SAPs.

Documentation and learning from implementation of this HWC-NAP and guidelines will also provide inputs to the overall body of knowledge. States are encouraged to document their feedback on the implementation of guidelines and include this feedback in the appropriate reports, to ensure that this feedback is utilised for further revision and updating of the guidelines. A significant section of knowledge on HWC mitigation would also come from the traditional and local knowledge available in different communities in India. Some of these may have the potential to be adopted as such, or combined with new knowledge and technologies. Inclusion of such knowledge into mitigation measures and plans will be highly encouraged.

Table 15: Desired results and achievements under Strategic Goal 14

Goal	Desired Results & Achievements	Responsible Institutions
Goal 14: States, agencies and other stakeholders systematically share information, experiences and knowledge with each other to co-create long-term solutions on HWC mitigation	A web-based national knowledge platform on HWC mitigation is functional and being used by key relevant stakeholders	MoEFCC
	The knowledge platform facilitates discussion and dialogue on critical issues on HWC mitigation, and formulating recommendations for the revision processes of the HWC-NAP and HWC-SAPs	MoEFCC
	Traditional and local knowledge is being used to innovate and further contextualise HWC mitigation measures	MoEFCC



A woman in a yellow top and blue pants is walking on a path next to a rice paddy field. The field is filled with young rice plants, and the water reflects the sky. In the background, there are trees and a small building. The sky is filled with large, white clouds.

7. Strategic Priority D: Reducing the negative impacts of HWC on humans and wildlife

STRATEGIC GOAL 15: Reduced vulnerability of humans

Local communities, particularly marginal farmers in HWC hotspots seem to be the most vulnerable to the negative impacts of HWC, although a systematic vulnerability mapping exercise has not been conducted. The first step, therefore, would be to standardize the methodology and benchmarks for vulnerability mapping in the country, to develop a better understanding of the vulnerabilities and resilience to HWC. A stepwise implementation of measures to reduce vulnerability to HWC and enhance resilience, will then be planned. Technical support documents will be developed to assist the implementers.

Resettlement schemes aimed at preventing the overlap of wildlife and humans can be successful in the long run, and will be explored further.

Efficient victim care and rehabilitation is significant to reduce the vulnerability of humans affected by HWC. Operating procedures and other instruments will be developed for enhancing cooperation with police, health department, local hospitals, district and local administration, disaster management departments, National Disaster Response Force (NDRF) and State Disaster Response Forces (SDRFs), civil defence institutions and volunteers, and paramilitary forces, during emergency situations, especially for crowd management and medical emergencies.

Financial and logistic support by the SFDs during victim care and rehabilitation will be strengthened.

Efforts will be made to engage with farmers and livestock herders in HWC hotspots, together with the agriculture and animal husbandry department, agriculture and veterinary research and extensions institutions. This can be done by facilitating them in the development of crops and cropping systems that are less attractive to wild herbivores, are suitable for local climatic and edaphic conditions, and are economically viable. Farmers will be supported in diversification into more types of crops, leading to reduced overall exposure and staggered harvest time.

This will be combined with effective crop protection measures for reducing overall vulnerability. Similarly, affordable livestock protection measures (e.g., herding or stall feeding) need to be defined and promoted. Only where these measures (alternate crops, crop and livestock protection) fail, despite sincere

implementation, *ex gratia* for crop and livestock loss would be used, as the last resort to reduce vulnerability of affected humans, as per the established procedure and rules of the respective state governments.

Current challenges associated with compensation schemes will be systematically addressed. Requirement of proof of improved crop and livestock guarding methods for receiving compensation payments may address this challenge to a large extent. The use of digital technology such as mobile applications to speed up the process of compensation payment, as being practised in some states, would be explored by all states in India. These will also be linked to the National HWC Mitigation Database. Furthermore, studies to facilitate a better understanding of the economics of losses, and research towards appropriate crop damage assessment methodologies due to HWC would be promoted. This will lead to more effective quantification, and help in identifying appropriate compensation amounts.

Use of economic tools such as crop and livestock insurance will be promoted on high priority. Crop damage due to wild animals has already been brought under the Pradhan Mantri Fasal Bima Yojna (PMFBY) as an additional risk cover. Efforts will be made to bring it under the main list of the scheme.

Vulnerability of the humans can also be reduced by providing a variety of economic incentives and benefits for offsetting the cost of living with wildlife. Possibility of setting up of foundations or trust funds for extending sustained support to the victim, can be explored.

Promotion of community-based ecotourism outside the PAs may enable local communities to offset the costs of wildlife presence and actually benefit from the same. The development of other wildlife-friendly livelihood development activities (social, economic and ecologically sustainable) needs to be evaluated.

Guidelines and mechanisms, such as joint patrolling by different departments, and zoonotic disease surveillance will be developed in each division (linked to HWC-MAP) to enhance cooperation between SFD, medical and health department, local hospitals and police, etc., to ensure that crowd management and medical emergencies are addressed in the most efficient manner during HWC-related emergencies.

Table 16: Desired results and achievements under Strategic Goal 15

Goal	Desired Results & Achievements	Responsible Institutions
Goal 15: Reduced vulnerability of humans	An HWC vulnerability mapping exercise is conducted to identify key issues and benchmarks	MoEFCC, SFDs
	Farmers are facilitated, via agriculture department and associated institutions, for adopting sustainable, climate-smart and wildlife-smart agricultural practices and to reduce crop losses	MoEFCC, Ministry of Agriculture & Farmers' Welfare, State Rural Development Department.
	Economic tools, such as compensation and <i>ex gratia</i> , are used where necessary, and in combination with crop and livestock insurance, along with activities such as crop- and livestock guarding and awareness measures	MoEFCC, MoRD, Ministry of Agriculture & Farmers' Welfare, SFDs
	Use of digital technology such as mobile applications to speed up the process of compensation payment	SFDs
	Community-based eco-tourism measures are explored as instruments for reducing vulnerability of humans in HWC hotspots	SFDs
	Guidelines and mechanisms (such as joint patrolling by different departments) in place in each division (linked to HWC-MAP) to enhance cooperation between SFD, medical and health department, local hospitals and police, etc., to ensure that crowd management and medical emergencies are addressed in the most efficient manner	SFDs, all relevant State departments

Strategic Goal 16:

Reduced vulnerability and enhanced occupational health and safety of field teams responsible for HWC mitigation.

Managing HWC invariably involves handling dangerous animals, drugs, hazardous chemicals and complicated equipment. It also involves dealing with difficult situations such as angry mobs, as well as risking injuries from animal bites or scratches, potential transmission of zoonotic diseases to humans, all posing health risks to the personnel involved. Occupational health and safety measures for all the personnel engaged in HWC mitigation operations will be a high priority for all states/UTs and agencies, to ensure overall well-being of the field staff and to avoid creating additional complications or casualties during the conflict mitigation operations.

The Guidelines on Occupational Health and Safety in the Context of HWC Mitigation will be formulated to elaborate methods, protocols and tools for ensuring health and safety during HWC mitigation operations. The members of RRTs and other frontline staff will be trained, using the approach as detailed in the *Supplementary Framework on Establishment and Capacity Development*, making them well versed with

the types of occupational health hazards they can be exposed to and how to deal with them. RRTs and other frontline staff will be provided with First Aid and Basic Life Support Training. In the event of any accident due to unforeseen circumstances, there will be a systematic emergency response plan to deal with that situation. Protective gear and other equipment will be made available for response teams and other frontline staff engaged in HWC mitigation operations, in each forest division.

One Health approach will be taken, especially when planning HWC mitigation measures in the forest fringe areas, in close coordination with the public health and animal husbandry departments. A systematic joint response involving relevant departments and agencies will operationalize the One Health approach. Efforts will be intensified, to cover the frontline staff under health and life insurance schemes, to collect samples for research, and to provide early warning systems for possible zoonotic and other emerging diseases.

Table 17: Desired results and achievements under Strategic Goal 16

Goal	Desired Results & Achievements	Responsible Institutions
Goal 16: Reduced vulnerability and enhanced occupational health and safety of field teams responsible for HWC mitigation	Mandatory occupational health and safety trainings are implemented, and protective gear and other equipment is made available for all members of the response teams and other staff engaged in HWC mitigation operations, in each forest division, based on guidelines on Occupational Health & Safety	SFDs
	Quarterly mock-drills on rescue and capture operations and other emergency operations are conducted at HWC hotspots, and bi-annual or annual mock-drills at other places, to ascertain overall preparedness of the response teams	SFDs
	Health and life insurance schemes are available for all the field staff engaged in HWC mitigation measures, including all members of the response teams	SFDs

Strategic Goal 17:

Reduced vulnerability of wild animals through animal welfare measures.

Animal welfare and ethical considerations will be integrated into the planning and implementation of all HWC mitigation measures. Training of staff from key departments and agencies, especially the HWC mitigation response teams at division, range and community-level, will be conducted jointly with other response teams and key relevant departments, to develop a common understanding of the safety and health issues of animals as well as humans beings in such situations. SFDs are encouraged to regularly conduct awareness programmes for the local community in cooperation with institutions such as panchayats and animal welfare institutions, on integrating animal welfare and ethical considerations into community-based HWC mitigation efforts and responses to wildlife.

Systematic participation of veterinary experts into the multi-stakeholder fora at division/ community-level, as well as in the national-level Working Groups, is encouraged. This will ensure that animal welfare issues are integrated at each stage of planning and implementation of mitigation measures.

Guidelines and Implementers' Toolkits will facilitate integration of animal welfare and ethical considerations into all prevention measures, including barriers and deterrents, fabrications and use of capture-, handling- and transport equipment.

Skilled veterinarians, well-trained response teams, field-tested guidelines, OPs, and appropriate equipment will be available for the capture, restraining and transport

of wildlife, to reduce vulnerability and ensure animal welfare, and ethical consideration are adhered to. Advanced training on animal welfare issues will be required for all personnel of the response teams, veterinary experts, and other officers and experts engaged in HWC mitigation measures.

Holding facilities and rescue centres will be equipped with the required equipment and skilled personnel, to ensure animal health and safety post-capture. Regional facilities to assess DNA markers to help identify individual animals in conflict will be explored, to ensure timely and accurate identification of target animal for rescue. Process and procedure of sample collection and submission for DNA marker assessment will be standardised, along with strengthening the system of monitoring and surveillance of zoonotic diseases.

Each state will systematically develop, through training and deputation, a pool of wildlife veterinary experts to be made available to each division, especially for the HWC hotspots, to ensure safe handling of the wildlife capture operations. Given that there are circumstances when the animal needs immediate care and attention, and the response teams are the closest and readily available, efforts will be made, in line with the existing legal provisions, to institute a system of developing a pool of SFD personnel from the response teams who can be certified, after advanced and specialized training, for animal immobilization, capture and handling operations, in specific circumstances, to ensure that animals in conflict receive timely care and attention.

Table 18: Desired results and achievements under Strategic Goal 17

Goal	Desired Results & Achievements	Responsible Institutions
Goal 17: Reduced vulnerability of wild animals through animal welfare measures	Communities, response teams and key relevant departments and agencies are sensitive to wildlife values and animal welfare issues, and make efforts to minimize the risk to wildlife	SFDs
	Forest officials, staff and members of rapid response teams are proficient in ethical, humane operations, as well as professional and scientific handling and management of animals in conflict	SFDs
	Veterinary expertise and capacities at the national, state and division-level are developed/ strengthened	SFDs

Strategic Goal 18:

Most vulnerable sections of the society, such as economically weaker groups, youth and women participate in planning, development and implementation of mitigation measures

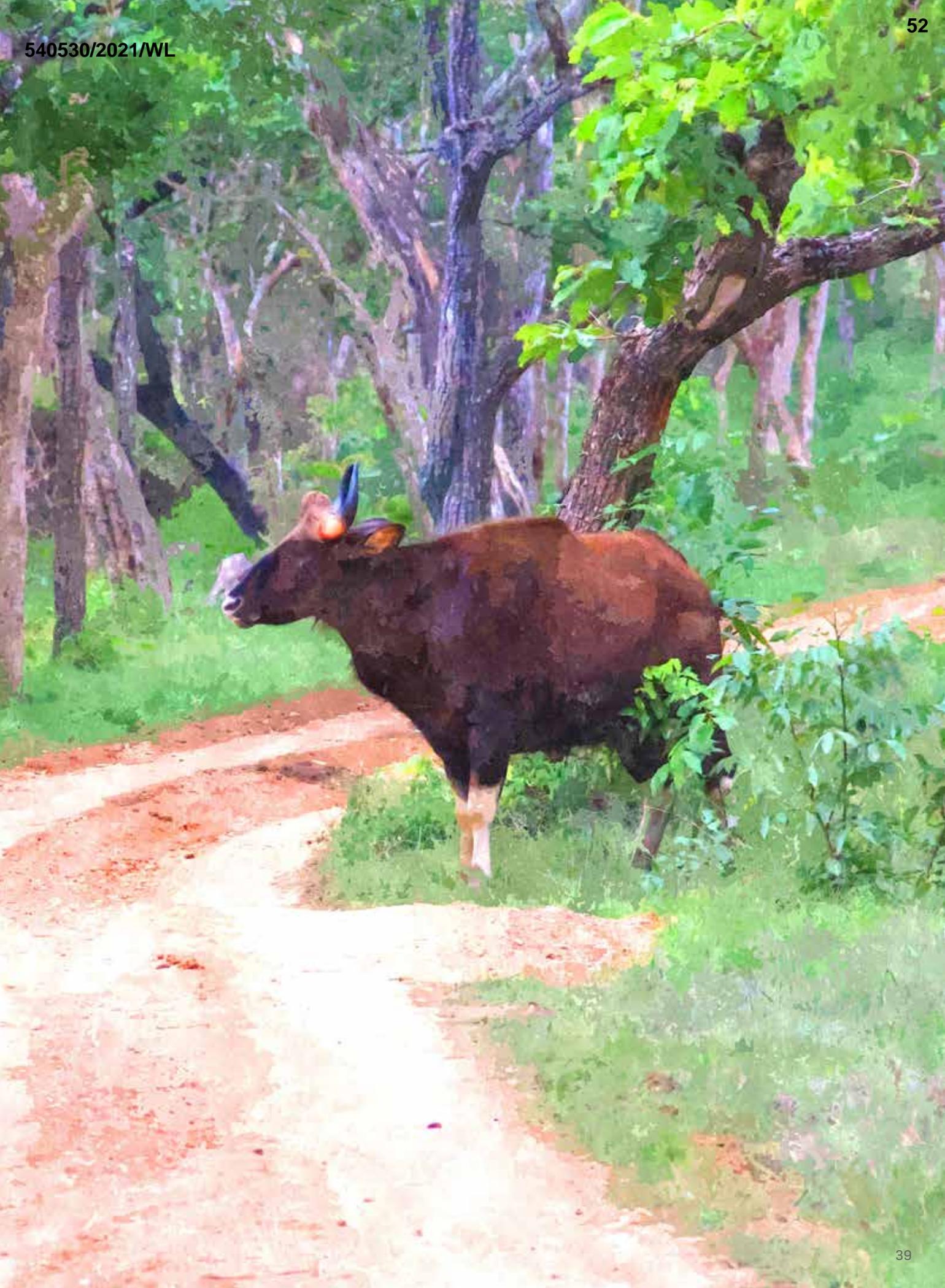
Local communities bear the direct brunt of HWC, suffering loss of livestock, human lives and other economic losses, as a direct or indirect result of HWC. A significant priority for each state and division will be to systematically map and analyse key stakeholders for HWC and ensure their effective participation in HWC mitigation measures, primarily through Community PRTs. This is a crucial step for commencing any inclusive approach. A multi-stakeholder approach would be encouraged for the successful implementation of the plans. Importantly, forming and empowering the Community PRTs by panchayats in an inclusive manner, with the participation of youth and women, will institutionalize a dedicated cadre of village/ward-level response teams. Strengthening the community-level PRTs with inclusion of statutory volunteers from existing institutional structures, to address critical issues such as crowd management and medical emergencies, will be explored. Training of the PRT members would gear the team towards preparedness for handling the HWC issues in their area as first responders, and additionally will act as

the key source of information to the RRTs and forest department.

Human attitudes, experiences, and vulnerabilities to HWC are shaped strongly by gender and other socio-economic factors. Women suffer a disproportionate burden of both direct and indirect impacts of HWC, in terms of decreased food security, changes in workload, increased physical, psychological, and economic hardship. Therefore, any form of HWC mitigation need to consider factors such as gender, age, and socio-economic situation as a prerequisite. Ensuring gender equality and women's rights, with due respect to human rights within the specific sector under consideration, will be a conscious step taken at every stage of planning, implementation and monitoring of the programme. Vulnerabilities of children will be given due consideration, as stress, fear and childhood trauma can strongly impact how they grow up as adults. Their rights to a safe environment and right to play, which are critical component in their well-being and development, will be given importance.

Table 19: Desired results and achievements under Strategic Goal 18

Goal	Desired Results & Achievements	Responsible Institutions
Goal 18: Most vulnerable sections of the society, such as economically weaker groups, youth and women participate in planning, development and implementation of mitigation measures	Stakeholder analysis for HWC mitigation conducted and updated every five years, by each forest division	SFDs
	Women, youth and rural poor, along with other stakeholders actively participate in HWC mitigation actions	MoEFCC, SFDs, State Rural Development Department and PRIs, District administration, NGOs
	Community engagement is strengthened and mainstreamed via Community PRTs	MoEFCC, SFDs, State Rural Development Department and PRIs, District administration, NGOs



Effectiveness of Mitigation

Measure

Actors

Effectiveness

Wildlife

Study of Animal Behaviour

+ WII - Dehradun
+ OTI (Wildlife Trust India)
+

08

+

COMMUNITY INVOLVEMENT AND EFFECTIVE PARTICIPATION

• Fringe Community ~~Participation~~
• Community Institutions
• SFD

8

+ 0

RED-LIGHT ALERT SYSTEM

FRINGE VILLAGERS FOREST DEPT.

8

+ 1

ECO DEVELOPMENT

LOCAL COMMUNITIES
FINANCIAL INSTITUTIONS
TRAINING INSTITUTIONS

10

+ 1

Technological advancement of local people

State Govt. & Private sector via CSR

9

+ 1

Intensive patrolling with in coordination with local people/communities.

Local community
Police
Local NGOs
Local media
State Forest Department
Education dept.

8

+

in Measures

Life-friendliness

10

7

10

10

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100 hac

6

8. Strategic Priority E: Effectively implementing the national, state and local HWC mitigation plans, by strengthening financial and institutional structures

Human resources, infrastructure and finance are the foundation in ensuring effective and efficient implementation of strategies and action plans in a sustainable manner. Strengthening human resources, by investing in institutional capacities, and by creating a culture of competencies-based training and capacity development in the country, is the priority in this direction. Another critical aspect is the alignment of state and division-level plans with the national strategy and plan, and ensuring effective operationalization of the plans at national, state and division levels. Of equal importance, is to secure financial resources, and not only work towards strengthening the existing partnerships, but also developing new partnership across sectors and states, to mitigate HWC in the most effective manner.

Strategic Goal 19:

Institutional capacities in forest and other key relevant sectors are strengthened, for effective implementation of HWC mitigation in the country.

The issues surrounding HWC are complex. So are the capacities and competencies required to effectively and efficiently mitigate the conflict. There is increasing expectations by the public from the forest personnel with regard to the performance and ability to respond to HWC situations. This makes it evident that very few ministries, departments and agencies would require their staff to have such a wide range of competencies, as the forest sector experts and institutions.

To cater to this demand, it is planned to establish a National Consortium on Human-Wildlife Conflict Mitigation, consisting of key national organizations, with the secretariat at the MoEFCC, in the form of a “HWC Mitigation Cell”. The consortium organizations will collaborate on capacity development of key stakeholders, through trainings, faculty development programmes, establishment of facilities with state-of-the-art equipment for simulation trainings, support states in developing and implementing state-level strategies and action plans, facilitate multi-stakeholder dialogue at the national and state-levels, undertake trans- and multi-disciplinary research on HWC mitigation, and assist the central ministries in inter-country dialogue and international cooperation on HWC mitigation. This consortium may eventually pave the way for a dedicated National Institution on Human-Wildlife Conflict Mitigation in India with the state-of-the-art facilities.

A Supplementary Strategy on Capacity Development for Human Resource Management for Effective and Efficient HWC Mitigation in India, will provide mechanisms and possible interventions in this direction. This strategy will draw upon the National Training Policy of India (2012) and will place individual competencies at the heart of all capacity development efforts, leading to institutional capacity development. To make this transformational process successful, a National Working Group on Capacity Development towards HWC Mitigation will be established to facilitate interventions including mapping the competencies of professionals and expert institutions/ organisations, developing competencies-based nationally standardized locally-customised curricula and participatory training methods, to be eventually integrated into the regular curriculum of all national and state-level training institutions of forest, veterinary, administrative, rural development and Panchayati Raj institutions, police, disaster management, media and other relevant sectors.

Cooperation will be established with disaster management and civil defence institutions, with the possibility of creating a pool of NDRF experts/battalion, civil defence and home guard statutory volunteers with specialization in handling critical cases of HWC including crowd management and dealing with the situations of medical emergencies. State Forest

Competencies are knowledge, skills and behaviours that are required in an individual for effectively perform. In other words, competencies are behaviours that lead consistently to successful performance.

Capacity Development is a process which enables individuals, organizations and societies as a whole to shape their own development sustainably and adapt to changing conditions. In order to trigger sustainable changes in social systems, capacity development always addresses three levels – the individual, the systems of reference, and the systemic level. Systemic level refers to the enabling environment where the individuals and systems of reference interact and grow. Systems of reference denote the individual’s immediate sphere of influence, and can be an organization, a company, a network or an informal community. Individual competencies are the skills, knowledge and behaviours that lead to successful performance and distinguish superior performers from mediocre performers. They are defined as a behavioural disposition enabling individuals to succeed and solve problems in the face of ambiguous and dynamic environments.

Departments are encouraged to engage with such training institutions to develop specialized units at state, division and village/cluster level, apart from facilitating regular joint trainings of response teams of forest department, police, disaster management, fire brigade, civil defence, home guards and paramilitary forces with support from the relevant training institutions.

Training institutions will be integrated into the National HWC Mitigation Forum to receive policy advice. It will bring in enhanced effectiveness through their participation in planning, development and implementation of HWC mitigation measures at local level, in an inclusive manner.

Table 20: Desired results and achievements under Strategic Goal 19

Goal	Desired Results & Achievements	Responsible Institutions
Goal 19: Institutional capacities in forest and other key relevant sectors are strengthened, for effective implementation of HWC mitigation in the country.	The national capacity development strategy is operationalized, to provide guidance and necessary frameworks towards human resources development on HWC mitigation at national and state-level	MoEFCC
	A “National Working Group on Capacity Development” steers the institutional capacity development and networking, to achieve continuous innovation	MoEFCC
	Key forest and wildlife training institutions at national and state level deliver training and other capacity development measures on HWC mitigation, with high degree of efficiency and effectiveness	MoEFCC, Indira Gandhi National Forest Academy, Wildlife Institute of India, Directorate of Forest Education
	Key national and state training institutions from rural development and Panchayati Raj, disaster management, civil defence, agriculture and veterinary, police, public health deliver training and other capacity development measures on HWC mitigation	MoEFCC, National Institute of Rural Development, state institutes of rural development and Panchayati Raj, National Institute of Disaster Management, National Police Academy, National Disaster Response Force Academy, training institutions under Indian Council of Agriculture Research, Indian Council of Veterinary Research, Indian Council of Medical Research

Strategic Goal 20:

Individual competencies in forest and other key relevant sectors, including frontline staff, *mahouts* and daily wage workers are strengthened.

At the national-level, a pool of wildlife professionals will be developed within the forest sector, who will be trained on HWC mitigation on a regular basis, and will contribute towards effective HWC mitigation in the country at different levels and different functional areas. Provisions will be made for the inclusion of specialized non-forest service experts, to monitor and evaluate the mitigation measures, mainstream HWC into other sectors, manage the multi-stakeholder forum, capacity development, and overall human resources management. On a priority basis, every division in India facing HWC situation will have a wildlife veterinary officer and community engagement expert.

Mahouts and daily wage workers are the backbone of conflict mitigation strategies for HWC. Daily wage workers constitute a major part of response teams in most states. *Mahouts* provide a crucial service when it comes to patrolling in difficult-to-access areas and capture operations of animals in conflict. Traditionally, the job of a *mahout* has been a hereditary, family-based profession across the country. *Mahouts* require the highest level of discipline and training. It is not only their own, but the elephant's life too revolves around them. Efforts will be made to facilitate young apprentice *mahouts* through specially designed training and periodic refresher courses, including courses on scientifically established elephant behaviour. Language barriers of *mahout* will be addressed by conducting trainings in local languages and developing a pool of trainers for future exercises. In future, this tradition will be supported by different means, including institutionalisation of the training and encouraging youth to take up this profession.

There are some states where *mahout* training is conducted on a regular basis and in a structured manner. Such states can act as regional training hubs for neighbouring states. All *mahouts* in service, including daily-wage *mahouts* and newly recruited *mahouts* would undergo training by SFD before providing them a department-issued license/certification. Down the years, there has been a steady decline in the number of *mahouts*, due to the complex nature of the field functions and job security. To this end, the possibility of inclusion of *mahouts* into the forest departments will be explored. *Mahouts* will be provided with hardship allowance and accident insurance. The possibility of a bonus system for well-kept and healthy elephants will be explored. A database of experienced *mahouts* will be established/linked to the HWC database, and this information will be made readily available to all divisions in each state.

At present, daily wage workers in the field have not been imparted any formal or regular training, although some divisions of a state may conduct occasional training. Daily wage workers, who perform the bulk of the frontline work in HWC mitigation, will be given dedicated training, when they are part of the RRTs, patrolling and other HWC mitigation efforts. Options to improve systematic salary payment, risk allowance and insurance will be explored, along with improving their working conditions.

On the same lines, contribution of snake rescuers in mitigating human-snake conflict needs to be recognized. Provisions for certification and rostering of snake rescuers will be made, through accredited training institutions. This will not only ensure overall effectiveness of snake-rescue operations, but also take care of the well-being of snakes during such operations.

Table 21: Desired results and achievements under Strategic Goal 20

Goal	Desired Results & Achievements	Responsible Institutions
Goal 20: Individual competencies in forest and other key relevant sectors, including frontline staff, <i>mahouts</i> and daily wage workers are strengthened	A competency framework on HWC mitigation is developed and used by the training institutions for implementing capacity development measures of forest and other sector professionals	MoEFCC, respective training institutions
	A pool of wildlife experts within the forest sector is available to work in HWC hotspots in India	MoEFCC, SFDs
	System for certification and rostering of snake rescuers through accredited institutions is developed	MoEFCC, SFDs
	Existing <i>mahout</i> training institutions offer trainings to <i>mahouts</i> of other states, using structured trainings, based on a standardized curriculum, in local languages	SFDs
	Working conditions of <i>mahouts</i> and daily wage workers improved	SFDs
	Daily wage workers are integrated into the training and other capacity development programmes of SFD	SFDs

Strategic Goal 21:

State-level HWC Mitigation Strategy and Action Plans (HWC-SAP) are developed, implemented and regularly updated in all states and Union Territories of India, taking a landscape approach.

Effectiveness and sustainability of all HWC mitigation strategies and plans depends on successful involvement and commitment at all levels of decision-making. While the national government remains the central actor by providing overall enabling policy and institutional environment, it is the state-level authorities who play a crucial role in addressing HWC at the field level.

To operationalise and align the implementation of the HWC-NAP, it is imperative that the state governments develop their own HWC Strategy and Action Plans (HWC-SAP). The strategic priorities and goals of HWC-NAP, along with supplementary frameworks and guidelines, will form the basis for developing these HWC-SAPs. HWC-SAPs will also take into consideration the ongoing programmes and schemes being implemented by the state government, recommendations from the SLCC, and provisions in the species-specific Guidelines and Implementer's Toolkits. The HWC-SAPs will be able to achieve their purpose only when they are integrated into the respective state-level planning process. Only then can the resource allocation for the implementation of the mitigation measures be defined with an objective to achieve the development goals of the state governments, and

synergies with key relevant departments be enhanced and trade-offs minimized.

The Common Framework for Developing State Human-Wildlife Conflict Strategy and Action Plans outlines the broad coverage as well as the requirements for the preparation of the state strategy and action plans. There would be systematic and regular coordination of different departments and agencies at the highest decision-making level in the states. This will ensure that HWC mitigation concerns are integrated into the state and district developmental plans. As a state policy, guidelines/orders would be issued to all development sectoral institutions, to take into consideration the extent and status of any HWC issues in the area, and probability of escalation due to proposed developmental plans. Relevant authorities and agencies responsible for implementing a developmental plan and activities in an area will be encouraged to consult the local forest authorities, on the status of HWC in the region, and information on the status of species-in-conflict, particularly foraging and movement patterns. It would be part of the impact assessment of the proposed activity, with appropriate consultation for risk assessment during the project formulation process itself.

Table 22: Desired results and achievements under Strategic Goal 21

Goal	Desired Results & Achievements	Responsible Institutions
Goal 21: State-level HWC Mitigation Strategy and Action Plans (HWC-SAP) are developed, implemented and regularly updated in all states and UTs of India, taking a landscape approach	States and UTs develop and update the state-level HWC-SAP, in line with the approach of HWC-NAP and within the existing legal provisions	SFDs
	Each state has established a State HWC Mitigation Forum, and State-level Coordination Committee (SLCC) to operationalize the HWC-SAP	SFDs, Respective State Governments/ UT administration
	States/UTs monitors and update State HWC Strategy and Action plans every five years	SFDs, Respective State Governments/ UT administration
	Regional HWC management plans are jointly developed and implemented by neighbouring states at a regional level, for wide-ranging species such as elephant and tiger.	MoEFCC
	HWC mitigation concerns are integrated into the state-level plans of key relevant sectors.	SFDs, Respective State Governments/ UT administration

Strategic Goal 22:

Division-level HWC Management Action Plans (HWC-MAP) in all states and Union Territories of India are developed, implemented and regularly updated.

HWC Management Action Plans (HWC-MAPs), taking into consideration the respective landscapes will be developed in each division or cluster of divisions, in line with the recommendations of the National Wildlife Action Plan of India (NWAP, 2017-2031). A common framework for developing the HWC-MAP is provided in Supplementary Framework to the HWC-NAP on Developing Division-level HWC Management Action Plans. The priority areas for developing HWC-MAPs are the districts that have high levels of HWC. The HWC-MAPs of divisions will be aligned to a landscape-level plan that will be the key instrument to operationalize inter-division strategies and measures.

To ensure that there is a regular and systematic exchange of experiences and information among the divisions within the same landscape, and among all divisions of the state, a landscape-level forum will be established at the Chief Conservator of Forests (CCF) level in the states. This landscape-level forum and stakeholder consultation process will facilitate the integration of landscape-level approach for developing and implementing HWC-MAPs at the division level. The forum can have: a working group of all Divisional Forest Officers (DFOs)/PA managers and relevant CCF/Conservator of Forest (CF) to facilitate intra-departmental networking; and a working group of

officers and experts from all key departments and agencies, to facilitate horizontal networking. The cross-department working group at district level can also be linked to the DLCC, and will be a key platform to work towards managing land-use change and bringing about synergies between goals of different departments, and facilitating inter-agency coordination for HWC mitigation during emergency situations. Under this forum, landscape-level knowledge sharing events and citizen science programmes can be organized, in collaboration with university/institutional partners. This will consolidate and broadcast the learnings and new experiences on HWC and its mitigation measures in the landscape. The learnings and proceedings of all such events can be used later for revision of the HWC-MAPs, and to provide feedback up to the HWC-SAPs.

A crucial requirement is for each HWC-MAP getting integrated into district and block development plans. SFDs would be facilitating this integration into relevant plans and processes at the district and block level. DLCCs would be the key institution to facilitate such integration, together with intensive efforts from the SFDs on organizing consultation meetings, workshops and joint trainings with the rural development and Panchayati Raj institutions at relevant levels.

Table 23: Desired results and achievements under Strategic Goal 22

Goal	Desired Results & Achievements	Responsible Institutions
Goal 22: Division-level HWC Management Action Plans (HWC-MAP) in all states and UTs of India are developed, implemented and regularly updated	Division-level HWC-MAPs taking a landscape approach – are developed, implemented and updated by each territorial division	SFDs
	All division- and landscape-level plans are adapted to integrate HWC mitigation, in line with the provisions made in the HWC-MAP	SFDs
	SLCC at state level, a multi-stakeholder forum at landscape level and DLCC at district level are steering integration of HWC mitigation into state, landscape and district-block level plans, respectively	SFDs, state departments of rural development and Panchayati Raj institutions,
	District and block-level planning integrates HWC mitigation, in line with the HWC-MAPs	SFDs, District administration and other relevant departments and agencies

Strategic Goal 23:

Finance and infrastructure is available for implementing national, state and divisional plans.

Financial and infrastructure resources are critical for effectively and efficiently implementing the national, state and division-level HWC plans. Key financial resources will be leveraged for strengthening field-level infrastructure, and infrastructure at the training institutions. This is apart from utilizing existing/new sources of finance, for developing economic instruments towards reducing the vulnerability of humans and wildlife. The existing budgets available with the MoEFCC and SFDs will not be able to adequately finance HWC mitigation plans. Therefore, there is a need to identify new and innovative financial sources and solutions and harness these to mitigate HWCs.

At the national level a “National HWC Mitigation Fund” may be established to fund several key HWC mitigation actions such as training and modernizing HWC mitigation infrastructure and equipment, corridor restoration, retrofitting existing infrastructure projects to mitigate their adverse impacts, and compensation and *Ex gratia* etc.

At present, states are utilizing their departmental funds for providing *Ex gratia* and compensation. However, these funds are not released to forest divisions on time and, funds are also not adequate to meet the demand. It is necessary for long-term sustainability and effectiveness of the mitigation measures, that dedicated funds are available. This is not only for providing timely *Ex gratia* and compensation, but also for systematically addressing the drivers, establishing prevention measures, occupational health and safety of response teams, and for animal welfare interventions.

For assured availability of funds for HWC mitigation, including for emergency situations, maintenance of a dedicated fund at state-level viz., a “State HWC Mitigation Fund” can be established. From this, funds can be made available at the disposal of the local-level officers such as DFO. Allocation made by MoEFCC to the states under schemes for HWC mitigation can also be routed into this dedicated fund.

The panchayats are provided with their own budgets, from various central and state-sponsored schemes and programmes. These can be assessed for possible leveraging areas and common issues with HWC mitigation measures. Panchayat institutions at appropriate levels can be encouraged to participate in planning and implementing HWC mitigation, wherever possible, within their mandates of agriculture and natural resource management and others.

Infrastructure is another critical factor in ensuring effective HWC mitigation. Suitable and effective equipment, in sufficient numbers and quantity, along with fully functional HWC Mitigation Hubs or control rooms are critical for enabling the response teams and other field staff of the SFD to efficiently and effectively implement mitigation measures that is expected of them. HWC Mitigation Hubs / control rooms will be established in each landscape. It will, therefore, be the highest priority for the central and state governments to make available all such necessary infrastructure support.

Infrastructure support will also be provided to the national and state training institutions, for establishing necessary simulation lab facilities, fitted with all the required equipment (e.g., innovative training moderation material, simulation training equipment, HWC mitigation equipment for demonstration etc.) required for hands-on and competency-based training of the officers, response teams and frontline staff from forest and other

key departments. States will be encouraged to set up and further develop animal health monitoring centres at HWC hotspots, to ensure that animals in conflict receive appropriate and timely treatment and post-capture care. Infrastructure for post-capture facilities of animals in conflict will be strengthened, including rescue centres and animal safari.

Table 24: Desired results and achievements under Strategic Goal 23

Goal	Desired Results & Achievements	Responsible Institutions
Goal 23: Finance and infrastructure is available for implementing national, state and divisional Plans	“HWC Mitigation Fund” is established at national and state level	MoEFCC
	Financial resources made available by private sector and agencies other than forest departments for HWC mitigation	MoEFCC
	Convergence of HWC-NAP with other government schemes and programmes has been successfully achieved, and financial resources identified	MoEFCC
	All key national and state training institutions have established HWC mitigation training simulation labs, for hands-on training on key mitigation and operational processes	MoEFCC
	Each territorial division at HWC hotspot has a functional HWC Mitigation Hub and well-equipped RRTs at division and range levels	SFDs

Strategic Goal 24:

Measures are in place for fostering partnerships between key stakeholders for sustainability and greater outreach in HWC mitigation efforts.

Key stakeholders from different sectors and domains would be engaged, via the National HWC Mitigation Forum, and other means, to create an alliance or network of different experts and institutions with diverse perspectives, competencies and resources to address complex challenges posed by HWC effectively. This will ensure collaborative efforts from a wide array of partners such as government departments and agencies such as rural development and Panchayati Raj institutions, disaster management departments and agencies, police, civil defence, home guards, private sector (tea and coffee plantations), railways and highways department, educational institutions, wildlife conservation and development NGOs, as well as farmers' cooperatives and agricultural research institutions.

Ways to ensure cross-sector cooperation include using a participatory and inclusive approach by SFDs in planning and implementing mitigation measures; efficient information sharing across key departments; joint training courses for officers from key relevant departments; and taking a landscape approach to plan and implement mitigation measures. To ensure cross-sector cooperation, a higher commitment would be invested from the forest departments to ensure inter-departmental collaboration.

Innovative financial solutions will be developed and piloted to mobilize resources for HWC mitigation measures, including engaging infrastructure and mining companies to provide CSR funds for mitigation measures in the HWC hotspots, they work in.

Private sector companies will be supported to develop and adopt innovative technologies, strategies, and approaches to foster wildlife-friendly production, processing and marketing. This will be especially focussed in case of tourism, plantation, agriculture and industry sectors, where a landscape approach would be essential to avoid habitat fragmentation. Donor agencies would be facilitated and encouraged to address HWC in their programmes, either as direct interventions, or by adopting safeguards to avoid escalation of HWC in their intervention areas. Civil society organisations, especially conservation NGOs and animal welfare organizations, will be encouraged and facilitated to take a more prominent role in HWC-related research. They will be encouraged to extend their cooperation in testing of innovative mitigation methods and supporting the implementation of the interventions in a participatory manner, to ensure sustainability and effectiveness.

There are specific national and global targets under SDGs and Biodiversity Post-2020 targets of the Convention on Biological Diversity (CBD), climate change targets and initiatives, interventions of Smart Cities initiatives, *Swachh Bharat Abhiyan*, where convergence with the goals and indicators of the HWC-NAP will be explored and facilitated. Convergence with Reducing Emissions from Deforestation and forest Degradation (REDD++) would be specifically facilitated to further strengthen the Strategic Priority A. Possibility of joint working and sharing of financial resources will be explored with these schemes and programmes.

Table 25: Desired results and achievements under Strategic Goal 24

Goal	Desired Results & Achievements	Responsible Institutions
Goal 24: Measures are in place for fostering partnerships between key stakeholders, for sustainability and greater outreach in HWC mitigation efforts	National HWC Mitigation Forum is being used to identify topics and issues of common interest by key stakeholders	MoEFCC
	System of providing technical support to private sector, for adopting wildlife-friendly HWC mitigation measures, established	MoEFCC, individual companies/ establishments
	Civil society organizations are taking an active role in implementing the interventions	MoEFCC, SFDs, selected civil society organizations
	Externally aided projects adopt safeguards to avoid escalation of HWC in their intervention areas	MoEFCC, Ministry of Housing and Urban Affairs, Ministry of Agriculture and Farmers' Welfare

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9. Implementation Plan

9.1. Implementation Approach

Given that HWC mitigation is a complex issue and it will take time to set up the mechanisms for monitoring, personnel and processes, the first phase of the implementation (2021-2026) would serve as a capacity development phase, to identify and assess specific gaps in the enabling environment, organizational capacities, and individual competencies.

This first phase of capacity development will also be critical for states in setting up the mechanism and processes for development of plans HWC-SAPs. They will also be creating enabling environment at state level, and developing division-level HWC-MAPs, aligned with state and national plan. In this phase, capacity needs for each state and division within the states would be prioritized. At the same time, plans will be developed to mobilize human and financial resources. States will also use this phase to receive feedback from key stakeholders on the plans and processes.

Institutional structures such as National HWC Mitigation Forum, state-level Coordination Committees (SLCC), landscape-level HWC forum, district-level Coordination Committee (DLCC) will play active roles in consolidating and reflecting on the feedback received from field implementation of the HWC-NAP as well as guidelines and facilitate in integration of this knowledge into developing adaptive mechanisms and measures at the relevant levels. At the end of the phase-I, comprehensive assessment of the progress and achievement, and stakeholder consultations would inform the process of updating the HWC-NAP. Feedback will also be received from the implementation of species-specific and issue-specific guidelines that will also be implemented during the same period. The next phase would be considered as the “First Implementation cycle of the National Human-Wildlife Conflict Mitigation Strategy and Action Plan (2026-31)”. In the subsequent implementation phases also, an in-depth capacity needs assessment report of each state/division would be evaluated, with a list of prioritized capacity development needs.

9.2. Plan for inclusion of key stakeholders in planning, development and implementation of HWC mitigation measures

Ensuring effective engagement of key stakeholders is essential to achieve all the goals set under the five strategic priorities of the HWC-NAP, and to ensure that the results are sustained over the long term.

- A communication strategy, will be developed by the National Working Group on HWC Mitigation Communication, to detail out the plan for raising awareness about the HWC-NAP, and to address the communication needs of key sectors and stakeholders to implement it.
- Facilitation of dialogue and awareness measures with key stakeholders to develop a common understanding on the strategic priorities, goals, expected results and achievements, possible interventions to achieve the results, mechanism and framework for monitoring and evaluation.
- Clarity of role and responsibility and scope of engagement
- Facilitating their engagement through technical support and institutional support. The working group on HWC Mitigation Communication, with specialist members drawn from wildlife, communication and media sectors, will be responsible for steering the implementation of interventions related to communication and awareness, to achieve the intended outputs and goals. Innovative instruments such as web-based knowledge platform will be used. This will act as focussed portal for all information and documents on HWC mitigation, such as strategy and plans, guidelines, good practices, case studies, training materials, toolkit, etc. It will also facilitate an efficient mechanism of multi-stakeholder dialogue on key issues of relevance via moderated online discussion forum
- Facilitating the stakeholders in monitoring and evaluation of the mitigation measures being implemented by them
- Women and youth will be encouraged to participate in all dialogue fora, as well as during the planning, development and implementation of mitigation measures at different levels.

9.3. Alignment with existing legal framework

Background

Conservation in India can be traced since prehistoric times and enactment of legislations to protect and conserve wildlife during the pre-independence era, eventually culminating in the Wildlife (Protection) Act, 1972

The basic ethical principle is that wildlife has a living interest, which in turn imposes reciprocal obligation and ethical duties upon us. The following principles are articulated as a basis for developing a legal perspective:

- If capture or elimination of animal in conflict is inevitable, then the methods used shall not inflict unnecessary pain and suffering.
- Humans have an affirmative duty to conserve and maintain biodiversity, including genetic variability and life support systems.

The National Forest Policy, 1988 advocates the needs of wildlife conservation, and linking the protected areas by “corridors” in order to maintain genetic continuity and the Draft National Forest Policy, 2019 raises concern that the “human-wildlife conflict” have escalated over the years due to combination of factors related to habitats and population of certain wildlife species within and outside forests.

The NWAP (2017-2031) prescribes adopting a concerted approach to protection, conservation and management of wildlife and recognizes that the HWC has directly and indirectly impacted humans leading to growing antipathy amongst the humans to wildlife and at the same time recognises that welfare of animals must be the primary consideration while managing conflict and the release in the wild based on exigencies of the situation and species-specific consideration.

Important laws relevant for conservation when dealing with HWC

The following legislations are considered directly relevant for conservation when dealing with HWC:

- Wildlife (Protection) Act, 1972
- Prevention of Cruelty to Animals Act, 1960
- Environment (Protection) Act, 1986

Other important legislations which facilitate conservation when dealing with HWC, include: Indian Penal Code, 1860; Scheduled Tribes & other Traditional Forest Dwellers (Forest Rights) Act, 2006; Indian Easement Act, 1982; Electricity Act, 2003; Railways Act, 1989; National Highways Act, 1956; Disaster Management Act, 2005 etc

Dealing with the wildlife and its habitat

The Wildlife (Protection) Act, 1972 is meant to provide for the protection of wild animals, birds and plants and for the matters connected therewith or ancillary or incidental thereto with a view to ensuring the ecological and environmental security of the country.

The Wildlife (Protection) Act, 1972 (WLPA) clearly defines the following terms, relevant from HWC perspective - wildlife; animal; wild animal; captive animal; habitat; hunting etc

Animals listed under the various schedules get varying degree of protection and Schedule I animals have been accorded the highest protection.

Prohibition of hunting

As per Section 9 of the Act, no person shall hunt any wild animal listed in Schedules I to IV except as provided under Sections 11 and 12 of the Act.

The legal provisions providing permission for hunting wild animals; removal of wildlife and its habitat including action taken in the interest of wild animals and its habitat in order to address the HWC directly or indirectly is as under-

Permission for hunting of wild animals in certain cases

Hunting of wild animals is to be permitted in certain cases as provided under Section 11.

S.11(1)(a) - Schedule I animal

In case of Schedule I animal, if the Chief Wildlife Warden (CWLW) of any State is satisfied that such an animal has become dangerous to human life or is so disabled or diseased beyond recovery then s/he may, by order in writing and stating the reasons therefor, permit any person to hunt such animal or cause such animal to be hunted.

However, no order for killing can be passed unless the CWLW is satisfied that such an animal cannot be captured, tranquilised or translocated.

Also, no such captured animal shall be kept in captivity unless the CWLW is satisfied that such animal cannot be rehabilitated in the wild and reasons for the same are recorded in writing.

The process of capture or translocation, as the case may be, of such animal shall be made in such manner as to cause minimum trauma to the said animal.

S.11(1)(b) - Schedule II to IV animals

In case of wild animals specified in Schedule II to IV, the CWLW or the Authorised Officer may permit for hunting or cause to be hunted such wild animal or group of animals in a specified area when not only the wild animal has become dangerous to human life or is so disabled or diseased as to be beyond recovery but also when it becomes dangerous to property (including standing crops on any land). All such orders for hunting must be in writing and must state the reasons for issuing such an order.

There is also a provision that the killing or wounding of any wild animal in self-defence or of any other person will not be an offence. However, the person must not be committing an offence when this act became necessary and such animal shall be government property.

The provision of according permission for hunting Schedule I animal can be invoked only by the CWLW for safe-guarding human life; differentiating the same from Schedules II to IV which could also be invoked by the Authorised officer and could also include safe-guarding property (including standing crops on any land).

Killing or injury of wild animal

As per the spirit of Section 11 (1), no wild animal shall be killed unless all possible options of capturing, translocation and tranquilizing are exhausted. Provision has been made to provide for the killing of only such animal that has become dangerous to human life and property or is disabled or diseased beyond recovery in a specified area.

However, Section 11 (2) does provide for the killing and wounding in good faith of any wild animal in defence of oneself or any other person provided that when such defence becomes necessary, the person was not committing any act in contravention of any provisions of the WLPA or any rule or order made thereunder.

Also, as per Section 11 (3) any wild animal killed or wounded in defence of any person, shall become government property.

Permission for hunting (Special purpose)

Under Section 12, CWLW can grant permit, by an order in writing stating the reasons therefor, to hunt, subject to such conditions as may be specified therein, any wild animal specified in such permit for the purposes of education; scientific research; and scientific management in the context of HWC.

For the purposes of 'scientific management', it is either translocation of any wild animal to an alternative suitable habitat; OR population management of wildlife, without killing or poisoning or destroying any wild animal.

As regards to the grant of permit in respect of Schedule I wild animals, previous permission of the central government has to be obtained WHEREAS in respect of other Schedule wild animals, previous permission of the state government has to be obtained.

In the context of HWC management, hunting under this section envisages capture and translocation without killing or poisoning or destroying any wild animal.

Destruction/removal of wildlife from Sanctuary and National Park

Any activity undertaken within the limits of a Wildlife Sanctuary (WLS) or National Park (NP) is in accordance to the approved Management Plan by the CWLW and any action needed beyond a Management Plan, which is not prescribed or contemplated and arises due to HWC is covered under Sections 29 and 35 (6) of the WLPA in respect of WLS and NP respectively.

The above Sections authorize the CWLW to give permission to "destroy, exploit or remove any wild life including forest produce OR destroy or damage or divert the habitat of any wild animal OR divert, stop or enhance the flow of water into or outside the WLS / NP" with the prior approval of the state government in consultation with the State Board for Wildlife that such removal of wildlife from the WLS / NP or the change in the flow of water is for the "improvement and better management of wildlife therein".

As per the proviso, the forest produce so removed may be used for meeting the personal bonafide needs of the humans living in and around the WLS / NP and shall not be used for any commercial purpose.

The applicability of this Section has been interpreted by the Hon'ble Supreme Court of India in W.P. (C) No. 202/1995: TN Godavarman Thirumalpad vs. Uoi and Ors and it was clarified, that any activity including the removal must be a part of a formal Working/

Management Plan and the permission from Supreme Court was delegated to Central Empowered Committee in Forest Conservation Act, 1980 cases, and National Board for Wildlife in case of WLPA cases vide its order dated 05.10.2015.

Declaration of any wild animal as vermin

While power of placing any species in any schedule of WLPA is vested with central government in Section 61, Section 62 empowers the central government to place any wild animal other than those specified in Schedule I and Part II of Schedule II to be vermin for any area, and for such period as may be specified therein and such wild animal shall be deemed to have been included in Schedule V (Vermin) so long as such notification is in force.

As the power of notification is vested with central government, it will be incumbent upon SFD/state government to place a scientifically fact-based proposal to the central government duly cleared by the State Board for Wildlife (SBWL)/NBWL

Disposal of the hunted wild animal

As per Section 39 (1) (a) every wild animal, other than vermin, which is hunted under Section/s 11 or 29 (1) or 35 (6) or kept or hunted in contravention of any provision of WLPA or any rule or order made thereunder or found dead or killed by mistake shall be the Government property.

However, Act is silent about appropriation/disposal of the wild animals included in Schedule V under section 62. This becomes more complicated when the notification under section 62 is for a limited specified area and the same species in non-notified area attracts section 39.

It is therefore expedient on the state government while submitting the proposals for declaration of any wild animal as vermin to duly get the advice from the SBWL towards disposal of the hunted wild animal as the SBWL is mandated in formulation of the policy for conservation of wildlife; amendment of any Schedule; and protection of wildlife as per Section 8 of the WLPA.

Also, central government before declaration of any wild animal as vermin could seek the advice from the National Board for Wildlife (NBWL) towards disposal of the hunted animal as NBWL is mandated to promote conservation of wildlife; framing policies on the ways and means of promoting wildlife conservation; and suggesting measures for improvement thereto as per Section 5-C of the WLPA.

Rehabilitation / rescue of wild animals

As per Proviso (2) of Section 11 (1) (a) of the WLPA, the first priority is to rehabilitate the captured wild animal into wild before taking into captivity.

As per Schedule 3 (7) of Rule 10 of Recognition of Zoo Rules, 2009, no zoo shall accept any rescued animal unless it has appropriately designed enclosure and upkeep facilities for the animal as well as facilities for keeping it in isolation during quarantine period.

Also, as per Schedule 3 (8) of Rule 10 of Recognition of Zoo Rules, 2009, whenever any zoo decides to accept any rescued animal for housing, a detailed report regarding the source from which the animal has been received, legality of its acquisition and the facilities available at the zoo for housing, upkeep and healthcare shall be sent to the CWLW of the state.

Provided that in case, the rescued animal pertains to an endangered species (Schedule I & II) a copy of the report shall also be sent to the Central Zoo Authority (CZA).

As per NTCA's SOP (2013), under no circumstances, an injured/incapacitated tiger / leopard should be released back into the wild, and the same needs to be sent to recognized zoo with the approval of the CWLW and CZA. Such animals should be kept in a designated Rescue Centre of the Zoo.

Measures in the interest of wildlife

As per Section 33 and 33-A of the WLPA, the CWLW is the authority who shall control, manage and maintain all WLS and NPs and for that purpose (HWC included) –

1. shall take such steps as will ensure the security of wild animals.
2. may take such measures in the interest of wildlife as s/he may consider necessary for the improvement of any habitat.
3. may regulate, control or prohibit, in keeping with the interests of wildlife, the grazing or movement of livestock.
4. may take measures towards immunisation against communicable diseases of the livestock kept within 5 kms of a WLS or NP.

The above measures are considered quite critical in the Management Plan prescriptions as well as in undertaking preventive measures towards HWC.

9.4. Alignment with other plans and processes

The HWC-NAP is India's contribution to the global conservation, poverty alleviation and sustainable development efforts. At the global level, the strategic priorities and goals of HWC-NAP are in alignment with

- 2030 Agenda for Sustainable Development particularly, SDG 1 (End Poverty), SDG 2 (Zero Hunger), SDG 14 (Life below water), and SDG 15 (Life on Land). The following National Implementation Targets under SDG15 are specifically relevant to HWC mitigation:
 - Target 15.5: Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species
National Implementation Objective 2: Taking concerted efforts towards addressing the conflict between humans and wildlife.
 - Target 15.7: Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products
National Implementation Objective 11: Regular spatial and temporal dynamics of conflicts may be assessed for formulating and implementing state-level strategy for management of Human Wildlife Conflicts.
National Implementation Objective 12: Quick response, dedicated teams of well-equipped and trained personnel, mobility, strong interface with health and veterinary services, rescue centres, objective and speedy assessment of damage and quick payment of relief to the victims would be at the core of the short-term action.
- Draft Post-2020 Biodiversity Framework under negotiation at Convention on Biological Diversity (CBD) particularly Target 4: Ensure active management actions to enable the recovery and conservation of species and the genetic diversity of wild and domesticated species, including through *ex situ* conservation, and effectively manage human-wildlife interactions to avoid or reduce human-wildlife conflict.
- Relevant resolutions of Convention on the Conservation of Migratory Species of Wild Animals (CMS) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The HWC-NAP is aligned with the existing guidelines and advisories issued by MoEFCC. The National Wildlife Action Plan (2017-2031), National Biodiversity Strategy and Action Plan (2008) and Advisory on Human-Wildlife Conflict issued by MoEFCC (Feb 2020) have a clear policy direction and actions significant for HWC mitigation.

During the first phase of the implementation of HWC-NAP, further alignment will be achieved with following relevant processes, plans, policies and programmes, of forest sector as well as other sectors, at the national, state and district levels:

- Climate change and forestry programmes, including Green India mission, compensatory afforestation schemes
- Climate change adaptation measures, including those implemented under National Climate Adaptation Fund
- Rural development and Panchayati Raj programmes, including MGNREGA
- Urban development programmes, including Smart Cities, *Swachh Bharat Abhiyan*
- Agriculture programmes, including those related to crop and livestock insurance (inclusion of crop damage due to wildlife animals in *Pradhan Mantri Fasal Bima Yojna*), use of alternate crops, cropping pattern
- Exploring synergies with the institutions and volunteers including disaster management, civil defence and home guards under Ministry of Home Affairs, for their role in community engagement, crowd management and other rescue and emergency response measures.
- Synergies with the measures being implemented by the public health departments, animal husbandry departments and other relevant agencies on One Health, to integrate One Health approach in all relevant measures at national, state and local levels.
- Exploring the possibility of cooperation with Green Skill Development Programme, and other agencies and schemes for accreditation of relevant certifying agencies and strengthening the skill-base especially of the response teams and local community

9.5. Institutional mechanism for implementation of the HWC-NAP

The foundation for developing institutional framework for implementing HWC-NAP already exists in India, in the form of established systems and mechanisms, at central, state and division/ district levels. Additional soft structures and mechanisms are planned, to ensure that all key stakeholders are able to effectively participate in planning, development and implementation of HWC mitigation interventions. The institutional arrangement for the HWC-NAP in India is shown in Figure 2.

When it comes to institutional responsibility, this Action Plan is based on the premise that all advocacy steps suggested in this plan, cooperation with all key line ministries and agencies from other sectors, will be the responsibility of MoEFCC. MoEFCC will also pursue similar action with the state governments to coordinate the process at the state-level. The state governments will then steer the action on HWC mitigation through the SFDs.

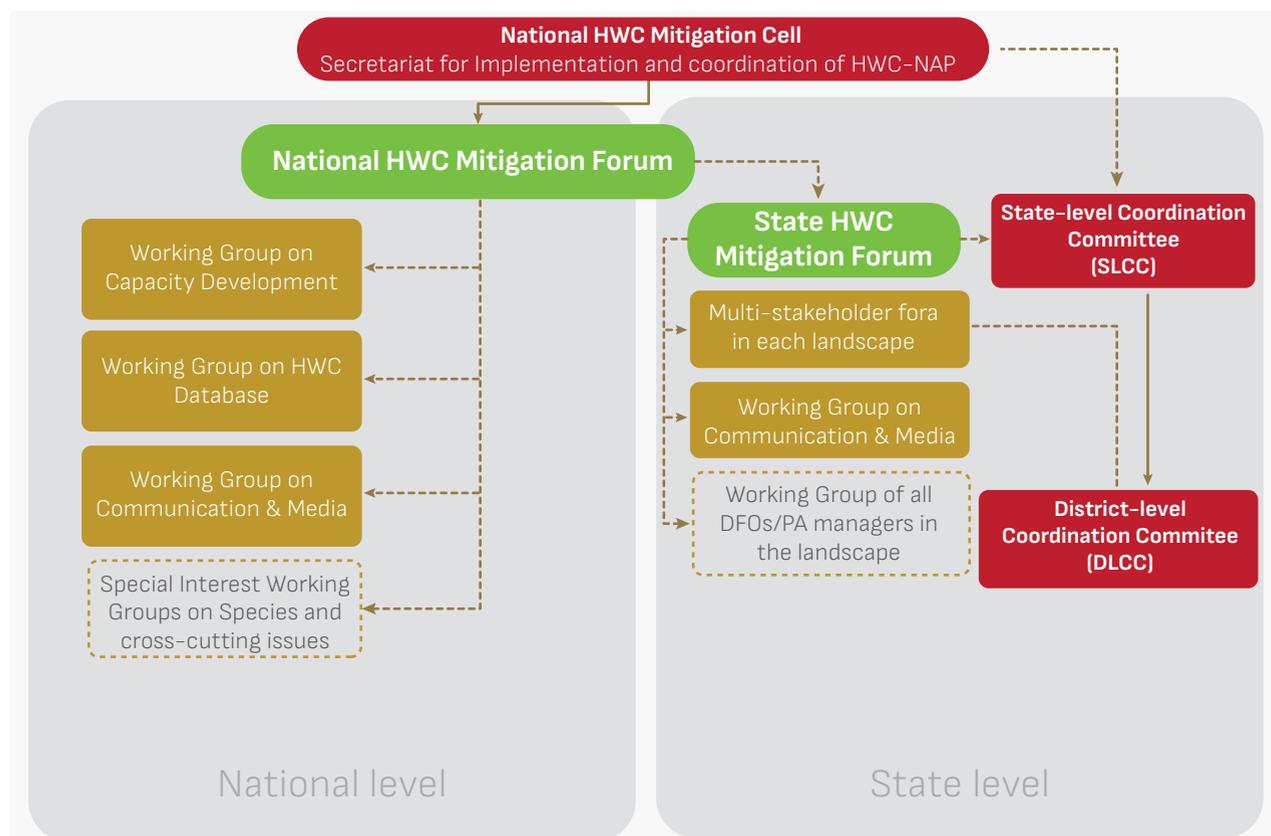
At National level, a national HWC Mitigation Forum will be established for overall coordination and guidance, for implementation at the national level. Representatives

from all relevant divisions/ departments/ agencies of MoEFCC at the national level, shall be part of the Forum. The Forum will also guide and facilitate the development of HWC-SAPs and their monitoring. The Forum, in the long run, will guide the MoEFCC and other key ministries and actors, in developing and implementing policies, processes, procedures and protocols, for effective and efficient HWC mitigation in India. The Forum will provide inputs on HWC mitigation to the Director of Wildlife Preservation, MoEFCC, Government of India.

The HWC Mitigation Forum will facilitate and steer two special sub-groups: multi-stakeholder sub-group to facilitate a wider dialogue among key stakeholders, and a sub-group of CWLWs on experience-sharing towards implementing the state-level HWC-SAPs using a common framework and approach.

The HWC Mitigation Forum will also facilitate and steer the following Working Groups, for coordinating technical work on key issues: National Working Group on Capacity Development, National Working Group on HWC Mitigation Communication, National Working Group on HWC Database, and Special Interest Working Groups (SWIG) relevant to species-specific and issue-specific guidelines.

Figure: 2 Institutional mechanism for the Implementation of the HWC-NAP



An HWC Mitigation Cell will be established at MoEFCC to serve as the secretariat, to bring in focussed efforts to engage different stakeholders during the plan implementation. The purpose of HWC Mitigation Cell is effective, holistic and timely coordination and implementation of the HWC-NAP.

At state/UT level, planning, review and monitoring of HWC Mitigation measures will be overseen by a State-level Co-ordination Committee (SLCC) with Chief Secretary as chair and CWLW as the member secretary. The committee would, among other tasks, will work towards alignment of HWC mitigation plans with the relevant plans and programmes of other sectors and departments; as well as make policy recommendations for strengthening the institutional, human and financial capacity of the system to implement HWC-NAP and HWC-SAP at state and local level.

A State HWC Mitigation Forum will be set up, chaired by CWLW, to facilitate a broad-based dialogue among key stakeholders, and discuss issues that maybe beyond the scope of SLCC. The State Forum will facilitate the implementation of HWC-SAP and implementation of guidelines. Each state will establish HWC Mitigation Task Force, under the HWC Mitigation Forum, to develop and periodically update their HWC-SAPs.

At district / division level, a district-level HWC Coordination Committee (DLCC) will be established in all HWC hotspots, chaired by the District Magistrate/ Collector/ Deputy Commissioner for inter-agency and cross-sector coordination. DLCCs of the districts in a landscape will be part of an overarching HWC Mitigation Multi-stakeholder Forum, at the landscape level, anchored at the CCF/CF level to steer landscape-level, planning and HWC-MAPs, with effective involvement of the district administration and other line agencies.

SFD will actively consult and involve relevant existing committees in all such matters as may impact HWC mitigation in the region.

Advisories will be issued by MoEFCC to guide inter-departmental coordinated and effective action by state governments/UT administrations on preventing and dealing with HWC and associated accidental deaths of wild animals listed in Schedule I to IV of Wildlife (Protection) Act.



The M&E framework will help in

- tracking the progress and measuring what is happening in relation to what was planned (process-level indicators).
- providing a basis for accountability for results used and results achieved and supporting evidence-based decision-making.
- fostering multi-level governance mechanism based on participatory multi-stakeholder approach.
- mitigating risks to performance.
- assisting in strengthening the capacity of local and regional authorities to implement their urban agendas; and,
- providing recommendations and lessons to inform future policy processes.

Documentation and learning from implementation of the HWC-NAP and guideline will serve as self-assessment of the implementing agencies and will significantly contribute to the overall body of knowledge.

To facilitate monitoring and evaluation of the HWC-NAP, 54 indicators have been identified, which will provide a clear measure of the progress on process, outputs and impact being made under the HWC-NAP.

The Driver-Pressure-State-Impact-Response (DPSIR) model is used as framework for identifying and structuring indicators. Indicators are identified for current conditions (i.e., state of HWC and its mitigation) and responses (i.e., actions taken to mitigate HWC).

Response indicators are further classified into:

- Inputs and processes (e.g., financial inputs, institutional structures, capacity development, knowledge management) marked as “P” in the table below.
- Outputs and Outcomes (e.g., new plans and guidelines, availability of data and information) marked as “O” in the table below.
- Impacts (e.g., decline in the number of incidents of conflict, increase in competence levels of professional) marked as “I” in the table below.

The National HWC Mitigation Cell at the MoEFCC level will be established, along with the Working Groups, in 2021. This Cell will have dedicated professionals working on coordination with different implementing institutions, and will also gather data and information on indicators. The first task of this Cell will be to establish the baseline in 2021-2022.

To support the implementing agencies and officers, detailed indicator sheets will be developed as part of the Implementer’s Toolkit, which will provide details on developing data and information towards calculation/ consolidated of information required for indicators. Implementer’s Toolkits will also include indicative interventions that can be implemented to achieve the goals.

Table 26: Monitoring Plan for HWC-NAP**Monitoring plan for addressing the key drivers of Human-Wildlife Conflict (Strategic Priority A)**

Goals	Indicators	Frequency of data reporting [all indicators will be reported in 2021 to establish baseline]	Responsible Institution for compiling data on the indicator
Goal 1: HWC mitigation is integrated into overall development planning as well as programmes, plans, policies and legislation of key relevant sectors.	Number of national programmes, plans, policies and legislations where HWC concerns are explicitly integrated (O)	Every five years	MoEFCC
	Number of inter-ministerial consultations on HWC mitigation (P)	Every five years	MoEFCC
	Number of states with a functioning state-level Coordination Committee (SLCC) (P)	Annual	SFDs
	State-wise proportion of division with functional district-level Coordination Committees (DLCCs) (P)	Annual	SFDs
	Number of state-level programmes, plans, policies and legislations where HWC concerns are explicitly integrated (O)	Every five years	MoEFCC, SFDs
	Number of states publishing the 'State of HWC report' (O)	Annual	MoEFCC
Goal 2: All development activities are sensitive to potential human wildlife conflicts	Number of cases where HWC was addressed in EIA report (P)	Annual	MoEFCC
	Number of new conflict hotspots as a result of development projects (I)	Every five years	MoEFCC
Goal 3: Comprehensive and integrated land use planning ensures that wildlife habitats are protected from loss, fragmentation and degradation	Trend of change in land-use/land cover (I) ⁷	Every five years	MoEFCC, Ministry of Housing and Urban Affairs
	Number of protected areas integrating climate change models into carrying capacity assessments (P)	Every five years	SFDs
Goal 4: Humans are enabled in working on their risk perception, improving their tolerance and enabling co-existence with wildlife in the same landscape.	Trends in risk perception of inhabitants in HWC hotspots (I)	Every five years	SFDs, National Working Group 'HWC Mitigation Communication'
	Number of educational institutions with 'holistic approach to HWC mitigation' integrated as part of their curriculum (O)	Every five years	MoEFCC, NGC secretariat
	Proportion of HWC hotspots with functional HWC helplines (O)	Annual	SFDs, National Working Group 'HWC Mitigation communication'
	Trends in number of media products that are in line with the holistic approach towards HWC (I)	Every five years	SFDs, National Working Group 'HWC Mitigation communication'

⁷ This indicator also facilitates the monitoring of implementation progress towards corresponding indicator under the Post-2020 (Draft) Global Biodiversity Indicator, as well as Draft National land-use policy

Monitoring plan for taking measures to reduce the direct pressures leading to conflict situation (Strategic Priority B)

Desired Results & Achievements	Indicators	Frequency of data reporting* [all indicators will be reported in 2021 to establish baseline]	Responsible Institution for compiling data on the indicator
Goal 5: Critical wildlife corridors, migratory routes, and movement paths of key wildlife species-in-conflict are identified, assessed and secured	Proportion of corridors with corridor management strategy (O)	Every five years	MoEFCC, NGOs
	Area of land brought under conservation in the wildlife corridors (O)	Every five years	MoEFCC, Working Group on National Database
Goal 6: Livelihood dependence of humans on protected areas, corridors, forests and other natural habitats is reduced	Trends in number of women and farmers practicing HWC-safe livelihoods (I)	Every five years	SFDs, ICAR
Goal 7: Incidences of wild animals entering or co-occurring in human-dominated areas are reduced, by applying, <i>inter alia</i> technological innovations, effective and wildlife-friendly preventive measures.	State-wise proportion of forest divisions and PAs providing data on population dynamics of key conflict species via the National Database (O)	Every five years	SFDs
	Number of divisions with early warning system (O)	Annual	SFDs
	Number of species-specific and issue-specific guidelines developed, field tested and updated in participatory manner (O)	Every five years	MoEFCC
	Well-being index of captured and translocated animals (I)	Every five years	SFDs
Goal 8: Efficient and effective response teams are developed in each forest division and protected areas at the HWC hotspots in India.	State-wise proportion of divisions with functional three-tiered response teams and hub (O) ⁸	Annual	SFDs
	Trends in public recognition of the impact of response teams (I)	Every five years	SFDs, National Working group on 'HWC Mitigation Communication'
	Trends in division-wise incidents of human-wildlife conflict (I) ⁹	Annual	SFDs, National Working Group on National Database
Goal 9: Wildlife habitat within protected areas and forests is restored	Trends in restored wildlife habitats around HWC hotspots (O) ¹⁰	Every five years	MoEFCC, SFDs
	Area covered by invasive species in HWC hotspots (O) ¹¹	Every five years	SFDs
Goal 10: Sustainable waste management and HWC-safe food storage in and around protected areas, and at HWC hotspots	Proportion of divisions with functional waste management plans (O)	Every five years	SFDs

8 This indicator also facilitates the monitoring of implementation progress towards SDG Goal 15.7. National Implementation Objective 12

9 This indicator also facilitates the monitoring of implementation progress towards corresponding indicator under Post- 2020 Global Biodiversity indicator (CBD)

10 This indicator also facilitates the monitoring of implementation progress towards target 8 of the National Biodiversity Action Plan (NBAP) of the Government of India

11 This indicator also facilitates the monitoring of implementation progress towards corresponding Post- 2020 Global Biodiversity indicator

Monitoring plan for ensuring availability of information and data on HWC to decision-makers and field response teams for effective mitigation measures (Strategic Priority C)

Desired Results & Achievements	Indicators	Frequency of data reporting* [all indicators will be reported in 2021 to establish baseline]	Responsible Institution for compiling data on the indicator
Goal 11: Wildlife research in the country addresses critical issues related to HWC mitigation	Trends in the financial resources allocated by Government and other actors for HWC related research (O)	Annual	MoEFCC
	Trends in research being conducted on HWC (O)	Every five years	MoEFCC
Goal 12: Effective, wildlife-friendly and evidence-based HWC mitigation measures are designed, implemented and customized for site-specific needs	Index on effectiveness and wildlife-friendliness of HWC mitigation measures (I)	Every five years	SFDs
Goal 13: A national database facilitates assessment and monitoring of HWC situation and formulation of effective HWC mitigation measures in the country	Trends in quality of data received at the National Database (O) ¹²	Annual	MoEFCC, Working Group on National Database
Goal 14: States, agencies and other stakeholders systematically share information, experiences and knowledge with each other to co-create long-term solutions on HWC mitigation	State-wise trends in recommendations received from DLCC, landscape forum, and SLCC on the implementation of HWC-NAP HWC-SAP and guidelines (O)	Every five years	MoEFCC
	Number of representatives from civil society and community-based institutions at the national, state and landscape-level landscape level HWC Mitigation Fora and Working Groups (P)	Every five years	MoEFCC

¹² This indicator also facilitates the monitoring of implementation progress towards SDG Goal 15.7: National Implementation Objective 11

Monitoring plan for reduction of negative impacts of HWC on humans and wildlife (Strategic Priority D)

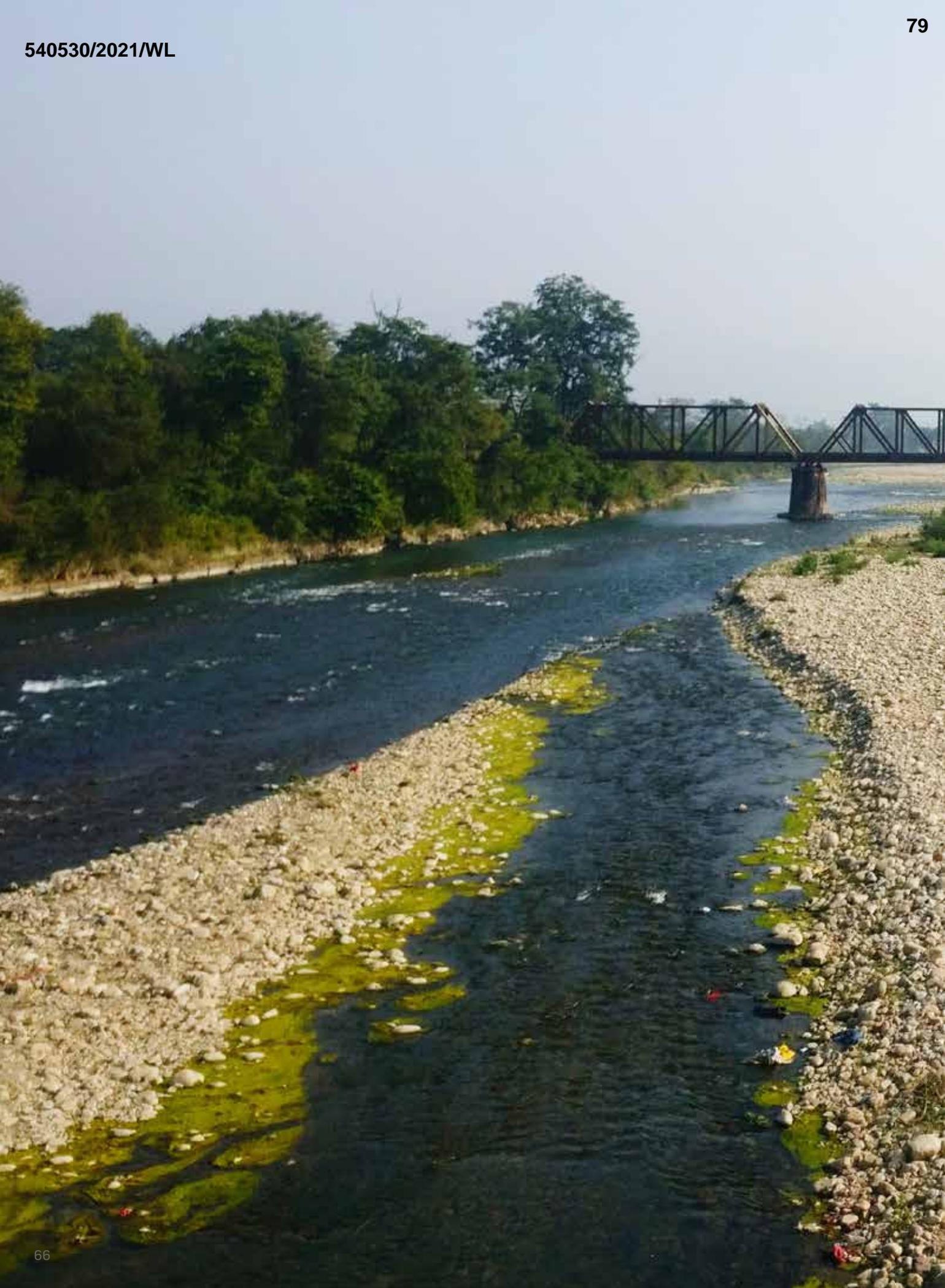
Desired Results & Achievements	Indicators	Frequency of data reporting* [all indicators will be reported in 2021 to establish baseline]	Responsible Institution for compiling data on the indicator
Goal 15: Reduced vulnerability of humans	Trends in sustainable, climate-and wildlife-smart agricultural practices at HWC hotspots (O)	Every five years	MoEFCC, Ministry of Agriculture and Farmer's Welfare
	People's perception of their vulnerability (I)	Annual	SFDs, National Working Group on 'HWC Mitigation communication'
Goal 16: Reduced vulnerability and enhanced occupational health and safety of field teams responsible for HWC mitigation	State-wise proportion of trainings of response teams for enhanced occupational health and safety (O)	Every five years	SFDs
	Proportion of response team personnel with health and life insurance (O)	Every five years	SFDs
Goal 17: Reduced vulnerability of wild animals through animal welfare measures	Number of wildlife injured or killed due to retaliation (I)	Annual	SFDs
	Trends in number of animals injured or killed due to inhibitory/ harmful elements in the landscape (I)	Annual	SFDs
	Number of animal deaths and injuries during the HWC mitigation operations (I)	Annual	SFDs
	Numbers of veterinary experts at the HWC Mitigation Fora and Working Groups at national, state and division levels (P)	Every five years	MoEFCC, SFDs
	State-wise proportion of divisions and PAs with a full-time wildlife veterinary expert (P)	Every five years	SFDs
Goal 18: Most vulnerable sections of the society such as economically weaker groups, youth and women participate in planning, development and implementation of mitigation measures	Trend in number of women in national, state and landscape-level HWC Mitigation Fora and Working Groups (P)	Every five years	SFDs
	Division-wise trend in proportion of women in response teams (P)	Every five years	SFDs

Monitoring plan for effective implementation of national, state and local-level HWC mitigation plans, by strengthening financial and institutional structures (Strategic Priority E)

Desired Results & Achievements	Indicators	Frequency of data reporting* [all indicators will be reported in 2021 to establish baseline]	Responsible Institution for compiling data on the indicator
Goal 19: Institutional capacities in forest and other key relevant sectors are strengthened, for effective implementation of HWC mitigation in the country	Trends in forest, agriculture, veterinary, administrative, disaster management, Rural Development and Panchayati Raj training institutions with HWC mitigation integrated into their curriculum (O)	Every five years	MoEFCC, Training institutions, National Working Group on Capacity Development
Goal 20: Individual competencies in forest and other key relevant sectors, including frontline staff, <i>mahouts</i> and daily wage workers are strengthened	Competency level of professionals on HWC mitigation (I) ¹³	Every five years	MoEFCC, Training institutions, National Working Group on Capacity Development
	Proportion of states having access to training institutions for <i>mahout</i> training (P)	Every five years	SFDs, MoEFCC
	Level of satisfaction of <i>mahouts</i> , assistants, snake rescuers and daily wage workers with their job and working conditions (O)	Every five years	SFDs
	Proportion of daily wage workers/ snake rescuers with competencies-based training certificate (O)	Every five years	SFDs
Goal 21: State-level HWC Strategy and Action Plans (HWC-SAP) are developed and implemented in all states and UTs of India, taking a landscape approach	Proportion of states with updated State-level HWC Strategy and Action Plan(HWC-SAP), developed and updated in line with HWC-NAP (O) ¹⁴	Annual for first Implementation Cycle; then every five years	MoEFCC
Goal 22: Division-level HWC Management Action Plans (HWC- MAP) in all states and Union Territories of India are developed, implemented and regularly updated	State-wise proportion of territorial divisions with HWC-MAP developed and updated, in line with HWC-NAP (O)	Annual for first Implementation Cycle; then every five years	SFDs
	Number of districts with HWC integrated into district-level planning (I)	Every five years	SFDs
Goal 23: Finance and infrastructure is available for implementing National, State and Divisional Plans	Trends in financial resources available to implement strategic plan (O)	Every five years	MoEFCC
	Trends in the convergence of HWC-NAP with schemes of other sectors (I)	Every five years	SFDs, MoEFCC
Goal 24: Measures are in place for fostering partnerships between key stakeholders, for sustainability and greater outreach in HWC mitigation efforts	Trends in participation of key stakeholders in the National HWC Mitigation Forum (P)	Annual	MoEFCC
	Trends in number of interventions in the HWC-NAP being led by civil society organizations (O)	Every five years	MoEFCC

¹³ This indicator also facilitates the monitoring of implementation progress towards National Training Policy of India 2012

¹⁴ This indicator also facilitates the monitoring of implementation progress towards SDG Goal 15.7: National implementation Objective 11



11. Process of Development of HWC-NAP

The preparation of HWC-NAP followed a participatory consultative inclusive approach involving relevant stakeholders and sectors.

Stakeholders were involved in a blended bottom-up and top-down approach with the aim of facilitating a common understanding and consensus among key stakeholders in India, on key approaches and possible solutions for mitigating HWC. This approach aimed to ensure that a fair combination of views and experiences from the field as well as advice from the policy level informed the formulation of mitigation measures

During the four-year-long process, a core group of experts drafted the document with feedback and inputs from field practitioners, policy and thematic experts, via a series of workshops, group consultations, meetings and review of existing documents and cases. The experts implemented different roles in the drafting and editing process, viz. Coordinating Lead Authors, Lead Authors, and Review Editors. A National Technical Group (NTG), consisting of experts from MoEFCC, WII, GIZ and independent wildlife and policy experts, was formed for overall steering and facilitation of the process. Detailed terms of reference of each of this category were provided and meetings and workshops of the author groups were facilitated under the Indo-German Cooperation Project on Human-Wildlife Conflict Mitigation. A 'Working Group on Pilot Implementation of Guidelines and HWC-NAP' was formed to facilitate efficient day-to-day coordination for pilot testing, consultations and editing of draft guidelines and HWC-NAP. Annex I provides details on these groups.

This led to a dialogue with the management and policy level and sector experts to define the overall framework, priority and goal setting, as well as the formulation of indicators. The drafts were updated with feedback and inputs received during pilot testing of the draft guidelines at 20 forest divisions and protected areas, and consultations on the HWC-NAP. During the drafting process, due care was taken to align the HWC-NAP with relevant plans and programs of other sectors and stakeholders to develop synergies and avoid trade-offs. The multi-stakeholder consultation and engagement process on HWC-NAP drafting continued during COVID-19 times albeit virtually, which further increased the level of engagement with the process.

16 national workshops, 14 meetings, and more than eight field consultations with division-level officers and frontline staff aimed at testing elements of HWC-NAP were organized from August 2018 to September 2021. The process culminated in a regional multi-stakeholder consultation for Eastern and North Eastern States in Kolkata on Sep 3-4, 2021 followed by a National Multi-stakeholder Consultation to receive feedback on HWC-NAP and Guidelines in Bengaluru on Sep 17-18, 2021.

12. Monitoring and Evaluation of HWC-NAP

The HWC-NAP is a dynamic document. It will keep evolving with the developments in the policy landscape (in forest and other sectors) and implementation methods and techniques emerging from the relevant research and field evidence of implementing the HWC-NAP. For this, the feedback from policy experts, field practitioners and other wildlife experts will be analysed, along with the monitoring reports on the indicators, to assess the specific elements and sections that need to undergo changes. The first revision will take place in 2026, and then once every five years 2026 onwards.

Annex I

The Ministry of Environment, Forest and Climate Change, Government of India gratefully acknowledges the contributions of experts and field practitioners who developed the zero draft of the HWC-NAP with support from innumerable contributors using a participatory approach in workshops and consultations organized under the Indo-German project on HWC mitigation in India. The Ministry acknowledges the support provided by the Wildlife Institute of India as a knowledge partner in Indo-German Project, and State Forest Departments for pilot implementation of the key elements of HWC-NAP during 2018-21 and providing their valuable feedback for updation of the drafts. The Ministry also acknowledge the technical support extended by the German Federal Ministry for Economic Cooperation and Development (BMZ) and *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ) in the preparation of the HWC-NAP.

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Annex- II

Key Meetings and workshops organized for development of HWC-NAP

Date and Venue	Title of event
04 Apr, 2018 Kolkata, West Bengal	Regional consultation: Need assessment for a common platform for states to discuss and manage human wildlife conflict
24 Aug, 2018	National workshops to consolidate the existing information, preliminary concept of the approaches and the outline
15-16 Oct, 2018 Wildlife Institute of India, Dehradun	Writing Workshop on HWC-NAP and Guidelines
17 Jul, 2019 Indira Paryavaran Bhawan, New Delhi	Meeting of Coordinating Lead Authors to discuss the outlines of the documents and confirmation of the overall approach
18-19 Sep, 2019 Aloha, Rishikesh, Uttarakhand	National Workshop on Developing Guidelines for Human Wildlife Conflict Mitigation in India
30 Sep, 2019 GIZ Office, New Delhi	Meeting of the group of authors, coordinators on 'Legal provisions' under National Action Plan
27 Dec, 2019 Kolkata	Regional Forum of the Eastern and North Eastern States on Human-Wildlife Conflict Mitigation in India
27 Feb, 2020 New Delhi	National Workshop on Development of Guidelines for Human Wildlife Conflict Mitigation in India
29 Jun, 2020 Online	Meeting for developing National Human-Wildlife Conflict Strategy and Action Plan for Mitigating HWC for further developing National Human-Wildlife Conflict Strategy and Action Plan for mitigating HWC
14 Jul, 2020 Online	Meeting of author group for further developing National Human-Wildlife Conflict Strategy and Action Plan for mitigating HWC
23 Jul, 2020 Online	Meeting of author group for further developing National Human-Wildlife Conflict Strategy and Action Plan for mitigating HWC
28 Jul, 2020 Online	Meeting of author group for further developing National Human-Wildlife Conflict Strategy and Action Plan for mitigating HWC
29 Jul, 2020 Online	Meeting of CLAs with veterinary experts to review the veterinary and animal welfare aspects in the draft HWC-NAP
18 Aug 2020 Online	Online Consultation on Sub-Zero Draft of the National Human-Wildlife Conflict Mitigation Strategy and Action Plan Karnataka Forest Department
21 Aug, 2020 Online	Online Consultation on Sub-Zero Draft of the National Human-Wildlife Conflict Mitigation Strategy and Action Plan Uttarakhand Forest Department
30 Sep, 2020 Online	Online Consultation on Sub-Zero Draft of the National Human-Wildlife Conflict Mitigation Strategy and Action Plan West Bengal Forest Department
13 Oct, 2020 Online	National Workshop on Development of National Action Plan for Human-Wildlife Conflict Mitigation in India
24 Nov, 2020 Online	Meeting of the National Technical Group on HWC-NAP
21 Dec, 2020 Online	Workshop on the Pilot Implementation of elements from HWC-NAP and Guidelines
22 June, 2021 Online	Meeting for the National Technical Group- HWC-NAP
28 Jun, 2021 Online	Meeting for the National Technical Group- HWC-NAP
22 July, 2021 Online	Meeting of the Working Group on Pilot Implementation and Consultations HWC-NAP
3-4, September, 2021 Hybrid - Kolkata	Regional Stakeholder Consultation - National Human-Wildlife Conflict Mitigation Strategy and Action Plan and Guidelines on key species and issues
17-18 Sept, 2021 Hybrid-Bengaluru	Meeting to discuss HWC-NAP, outline and common framework for HWC-SAP and overall structure of species and issues specific guidelines





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Government of India
2021