Guidelines for Addressing Health Emergencies and Potential Health Risks Arising Out of Human–Wildlife Conflict Situations

Taking a One Health Approach

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Acknowledgments

National Centre for Disease Control

Government of India

Ministry of Environment,
Forest and Climate Change,
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Abbreviations

ASHA	Accredited social health activist
AWW	Anganwadi worker
BMZ	German Federal Ministry for Economic Cooperation and Development
CPR	Cardiopulmonary resuscitation
CCTV	Closed-circuit television
CWLW	Chief Wildlife Warden
CZA	Central Zoo Authority
DBT	Direct benefit transfer
DFO	Divisional Forest Officer
DLCC	District-Level Coordination Committee
EDC	Eco-development Committee
EIA	Environmental impact assessment
EWRR	Early Warning and Rapid Response
GIS	Geographical information system
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoI	Government of India
HOFF	Head of Forest Force (in a state)
HWC	Human–wildlife conflict
HWC-MAP	Human–Wildlife Conflict Management Action Plan
HWC-NAP	National Human–Wildlife Conflict Mitigation Strategy and Action Plan
HWC-SAP	State-Level HWC Mitigation Strategy and Action Plan
IDSP	Integrated Disease Surveillance Programme
IFS	Indian Forest Service
IUCN	International Union for Conservation of Nature
JFM	Joint Forest Management
MoEF&CC	Ministry of Environment, Forest and Climate Change, Government of India
MoHFW	Ministry of Health & Family Welfare
NCDC	National Centre for Disease Control
NDRF	National Disaster Response Force
NGO	Non-governmental organisation
NTCA	National Tiger Conservation Authority
NTG	National Technical Group
NWAP	National Wildlife Action Plan
OPs	Operating procedures
PA	Protected area
PCCF	Principal Chief Conservator of Forests
PPE	Personal protective equipment
PRT	Primary Response Team
RFID	Radio frequency identification
RRT	Rapid Response Team
SDRF	State Disaster Response Force
SFD	State forest department
SHG	Self-help group
SLCC	State-Level Coordination Committee
SOPs	Standard operating procedures
WII	Wildlife Institute of India
WLPA	Wild Life (Protection) Act, 1972

Contents

1. ABOUT THE GUIDELINES

1.1. THE OVERALL CONTEXT

- These guidelines on 'Addressing Health Emergencies and Potential Health Risks Arising Out of Human-Wildlife Conflict Situations: Taking a One Health Approach' get the overall context from the Wild Life (Protection) Act, 1972, National Wildlife Action Plan (2017-31)[1] and National Human–Wildlife Conflict Mitigation Strategy and Action Plan (HWC-NAP) (2021-26)[2]. HWC-NAP provides the overall conceptual and institutional framework for implementing the guidelines. This document takes into consideration the existing policies, guidelines, advisories and good practices issued by the Government of India and various state governments related to health emergencies and potential health risks arising out of human–wildlife conflict (HWC) situations.

- These guidelines take into consideration the advisory to deal with human–wildlife conflicts (MoEFCC, 2021), which seeks expedited inter-departmental coordinated and effective action by state governments/UT administrations to prevent and deal with HWC and associated death/injury/permanent incapacitation of human beings/domestic animals/livestock due to attack by wild animals or loss of crops and property as well as accidental deaths of wild animals listed in schedules I–IV of the Wild Life (Protection) Act, 1972.

- These guidelines take into consideration the 'National One Health Programme for Prevention and Control of Zoonotic Diseases' being implemented by the Ministry of Health & Family Welfare (MoHFW), Government of India in coordination with the Ministry of Fisheries, Animal Husbandry and Dairying and the Ministry of Agriculture.

- The following guidelines on cross-cutting issues are to provide guidance on selected issues: Guidelines for Cooperation between the Forest and Media sector in India: Towards effective communication on Human-Wildlife Conflict Mitigation; Occupational Health and Safety in the Context of Human–Wildlife Conflict Mitigation; and Crowd Management in Human-Wildlife Conflict Related Situations.

- The following guidelines are to provide guidance on selected species: guidelines for mitigating human–Leopard, -Elephant, –Gaur, –Crocodile, –Wild Pig, – Bear, –Blue Bull, –Rhesus Macaque, -Snakes and –Blackbuck conflicts.

1.2. PURPOSE AND SCOPE

- The guidelines aim to facilitate a common understanding among key stakeholders on the measures and protocols to be implemented to address health emergencies arising out of human and animal injury during human–wildlife conflict-related situations and to address situations of potential health risks for humans, wildlife and domestic animals, taking a One Health approach.[3]

- These guidelines provide measures to prevent and mitigate the negative impacts on people, domestic animals and wild animals that may arise due to health emergencies during HWC-related emergencies or during HWC mitigation operations.

- The guidelines serve as a basis for overall long-term planning and coordination of measures at the national, state and division levels.

- In general, the guidelines apply to all stakeholders relevant to addressing health emergencies and One Health and are not limited to the state forest departments.

- The guidelines will be able to bring in more effectiveness and efficiency when they are fully integrated into the Division-Level HWC Management Action Plans (HWC-MAP) and State-Level HWC Mitigation Strategy and Action Plans (HWC-SAP) and in the implementation plans of the National One Health Programme for Prevention and Control of Zoonotic Diseases' being implemented by the Ministry of Health & Family Welfare (MoHFW).

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1   MoEF&CC (2017). National Wildlife Action Plan (2017-35)
2   National HWC Mitigation Strategy and Action Plan of India (2021-26), available from https://moef.gov.in/wp-content/uploads/2022/01/National-Human-Wildlife-Conflict-Mitigation-Strategy-and-Action-Plan-of-India-2.pdf
3   One Health is a collaborative, multi-sectoral and trans-disciplinary approach—working at the local, regional, national and global levels—with the goal of achieving optimal health outcomes, recognising the interconnection between people, animals, plants and their shared environment.

1.3. APPROACH

- The development and implementation of these guidelines is driven by a harmonious- coexistence[4] approach to ensure that both humans and animals are protected from negative impacts of HWC.

- While the overall planning and coordination of human–animal conflict mitigation operations will be the responsibility of the state forest department, all other concerned key departments and agencies participate in and support the operations and carry out their functional responsibilities in coordination with the forest department to implement these guidelines.

- The guidelines address the issue of health, adopting a holistic approach.

- These guidelines may be provided to each forest range, RRT, PRT, district administration, police station at a HWC hotspot, hospital, district disaster management authority, panchayat and wildlife expert and to other key stakeholders as mentioned in these guidelines.

- The documents may be translated into the local language for the field teams. Specific elements such as checklists, especially those needed for emergency response situations, may be printed in large-size posters and placed prominently on the walls of the HWC Mitigation Hubs and in similar control rooms of other stakeholders such as the police, district administration, hospitals, accredited social health activists (ASHAs) and anganwadi workers (AWW).

1.4. LEGAL AND POLICY FRAMEWORK FOR IMPLEMENTING THE GUIDELINES

These guidelines may be read in conjunction with the existing relevant legal and regulatory frameworks. Also, any change in the legal provisions would require revisiting the guidelines. Refer to the supplementary framework of the HWC-NAP for more details on the specific legal provisions for HWC mitigation.

1.5. INSTITUTIONAL FRAMEWORK FOR IMPLEMENTING THE GUIDELINES

- The institutional mechanism outlined in the HWC-NAP may be followed for implementing these guidelines.

- Implementation of these guidelines will be anchored in each district at the District-Level Coordination Committee (DLCC), chaired by the respective District Collector, where the system of regular feedback and fine-tuning of the protocols and processes will be done to customise these to suit the local conditions.

- An effective coordination with the institutions responsible for implementing the 'National One Health Programme for Prevention and Control of Zoonotic Diseases' being implemented by the Ministry of Health & Family Welfare (MoHFW), Government of India, may further strengthen the implementation feasibility of these guidelines.

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4   Harmonious coexistence' is defined as a dynamic but sustainable state in which humans and wildlife adapt to living in shared landscapes, with minimum negative impacts 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 that of humans in which both are given equal importance. Overlap in space and resource use is managed in a manner that minimises conflict.

2. CONTEXT AND SITUATION

- Over 30 new infectious diseases have been detected globally in the last three decades, around two thirds of which were zoonotic in origin. There is an ever-increasing interface between animals and humans primarily due to habitat fragmentation and loss, the global trade in wildlife and increasing demands of ecotourism and other forest-dependent livelihoods. This has led to growing numbers of people and livestock in close proximity with wildlife, resulting in disease spill-over. This situation has a potential to grow out of proportion, and the resulting health risks can undermine the conservation and development efforts in such areas.

- The present situation and associated socio-economic and ecological impacts need to be urgently addressed keeping in mind that human, animal and ecological health are inter-connected—One Health. The One Health concept is based on the understanding that human, animal, and environmental health are closely interconnected and interdependent.

- One Health is a collaborative, multisectoral, and transdisciplinary approach–working at the local, regional, national and global levels–with the goal of achieving optimal health outcomes, recognising the interconnection between people, animals, plants and their shared environment.

- Indicative situations during health emergencies in HWC mitigation measures where risk of zoonotic and other emerging diseases are high include animal capture and translocation, treatment of injured animals, post-mortems and close wildlife–domestic animal–humans contact.

- So far, measures to address the health emergencies for humans, wildlife and domestic animals are being implemented by the public health, wildlife-veterinary and animal husbandry sectors in their respective work programme and using their separate channels, with the exception of the wildlife and veterinary sectors working together for protected areas.

- To effectively address and manage health emergencies during HWC mitigation and to operationalise a One Health approach to ensure the well-being of humans, animals and the environment, a coordinated effort of wildlife, veterinary and public health is required at the local level, bringing together field teams from these sectors, with the overarching cooperation with the district administration, rural development department.

- The Ministry of Health has been implementing the 'National One Health Programme for Prevention and Control of Zoonotic Diseases' since the 12th Five-Year Plan in coordination with the Ministry of Fisheries, Animal Husbandry and Dairying and the Ministry of Agriculture. Under the programme, various initiatives are being undertaken, including capacity building of medical, veterinary and wildlife professionals, laboratory strengthening for diagnosis of zoonotic diseases in humans and animals and creating community awareness. State-level zoonosis committees comprising the human, animal and wildlife sectors have already been constituted in 34 states.

- These guidelines will further strengthen the ongoing efforts by providing specific advice on addressing health emergencies arising due to HWC situations and taking a One Health approach in all measures relevant to HWC mitigation.

3. ADDRESSING HEALTH EMERGENCIES IN HUMANS

3.1. IDENTIFICATION OF HEALTH EMERGENCIES

The frontline staffs (both regular and contractual) of forest departments and the staffs of other relevant departments and institutions (e.g., the district administration, the police) can often find themselves in situations where they may be harmed.

- This may occur during patrolling, where they may be unexpectedly confronted by a wild animal or even during wildlife rescues or other HWC mitigation operations. Often, they are the first on call to manage conflict situations, where they may be injured by an alarmed animal that they are trying to rescue.

- They may also be attacked by a mob that may be reacting to the death or injury caused to humans by a wild animal that may have inadvertently strayed into a habitation.

- It is not very uncommon for members of the frontline staff to be electrocuted by an illegal electric fence set up by local farmers to protect their crops from wild animals.

3.2. ADDRESSING HEALTH EMERGENCIES

Emergency situations may need to be addressed at different levels, i.e., on site treatment through first aid and then possible transfer to local hospitals and in case of special needs/seriousness of injuries-advanced specialised hospitals.

- Operating procedures may be laid down in each forest division/district in line with these guidelines and in line with the institutional framework suggested under the HWC-NAP to ensure timely coordination amongst the various response teams from the forest department and other agencies, under the DLCC, consisting of the District Magistrate/District Collector, the police, the fire services, the Animal Husbandry Department, the Health Department, the SDRF, the Agriculture Department, the Department of Rural Development and Panchayati Raj, paramilitary forces, and other key relevant departments and agencies, and the local community-based institutions, especially panchayat leaders, community PRTs, ASHAs, anganwadi workers and para-veterinarians.

3.2.1. On–site

- The state forest departments may need to develop operating procedures for facilitating inter-agency coordination for such situations.

- Staff members of the state forest department who are trained in administering first aid, basic life support training and basic emergency support may be deployed.

- Fully equipped first aid kit that is constantly refilled/replenished with required medicines and other important items

- Fully equipped ambulance with oxygen supply

- Relevant medicines/anti-allergics/antidotes—anti-venom, burn treatment, slings, stretchers, etc.

- Ready budget for meeting emergencies/quick local purchases of medicines/services

- Directory of contact numbers of nearby healthcare centres

3.2.2. Special case of addressing medical emergencies during crowd management (including mass casualties)

Any crowd-related incident in a typical HWC situation will manifest into two kinds of medical emergencies from a human health standpoint, which include human mortality and physical trauma injuries. The cause of human deaths and trauma injuries in such situations is mainly attributed to the following:

- A stampede as a result of the gathering of large numbers of people at or in the vicinity of the incident spot.

- An assault by an unruly crowd on the animal, resulting in the animal attacking and injuring the crowd.

- Animal/animals at the incident spot (who have not been provoked) initiating an attack/assault on bystanders/watching crowd.

- Use of force to disperse or control a crowd that is gathering.

- Accidental firing of arms.

- Panic attacks to people who are claustrophobic.

The following measures may be implemented to minimise human deaths and injuries:

- The designate Medical Response Teams on-site (trained health personnel/Health Department) may activate the first aid and medical response plan and initiate primary first aid/treatment procedures for the injured people at the incident site.

- The designate response team for crowd control on-site (police and emergency services) may escort uninjured people to safer havens/areas.

- The designate Veterinary/Response Teams (veterinary and forest) on-site may control the movement of the animal/animals by effective tranquilisation and capture procedures in order to contain further injury to people.

- The Rapid Response Teams under the Integrated Disease Surveillance Programme (IDSP) of the Ministry of Health & Family Welfare, Government of India is mandated to investigate the outbreak and response for all Infectious diseases, including zoonotic diseases. These RRTs comprise a multi-disciplinary team including veterinarians and wildlife officers. Therefore, activities for the SFD RRTs and IDSP RRTs may be synergized for enhanced efficiency and effectiveness.

- The triage protocol, especially in a mass casualty situation like a stampede, may be immediately deployed by trained personnel of the Quick Medical Response Teams/ Designated Health/Medical Teams on-site to facilitate prompt segregation of people with minor and major trauma injuries.

- Depending on the nature of the physical injury, first aid and basic life support, including cardiopulmonary resuscitation (CPR)), may be administered to the injured people by trained and authorized personnel.

- People with major injuries and life-threatening conditions may be immediately transferred in an ambulance and other support vehicles to the nearest health/hospital facility. Traffic management may be coordinated in a manner to facilitate speedy transport of injured people to the nearest health/hospital facility.

- Dead bodies may also be transported to the nearest health/hospital facilities according to the protocol laid for the same.

- Each of the injured persons (who have received first aid/with minor injuries) may be taken to the nearest equipped health/hospital facility for an overall health check-up to rule out any health issue/risk arising from the injury.

For this, it would be essential to:

- Activate the District Crowd Management Plan and take necessary actions in line with the Standard Operating Procedures as detailed in the Plan, especially in terms of intra= and inter-agency communication and coordination, transportation and traffic and medical management procedures.

- Coordinate with the state-level zoonosis committee (formed in 34 states in India) and Regional Coordinators (12 medical/veterinary institutes) for additional support and for avoiding duplication of resources and measures.

- Coordinate with the Rapid Response Teams under the IDSP, of the Ministry of Health & Family Welfare, Government of India, which are mandated to investigate the outbreak and response for all Infectious diseases, including zoonotic Diseases. The IDSP RRTs are composed of a multi-disciplinary team including veterinarians and wildlife officers. Therefore, effective coordination between the RRTs of the state forest departments and RRTs established under the IDSP may be strengthened.

The *Implementer's Tool Kit* may further provide clarity on the roles, responsibilities and set of actions to be implemented by each of the designated response teams for various preparedness, capacity development and response measures for handling such situations on the ground.

3.2.3. During transportation

Emergency medical transportation and evacuation are always unexpected and need spontaneous and speedy responses at the desired time.

- The ideal transportation and evacuation may be carried out within minutes or in the shortest possible time so that the injured person can be treated in the 'Golden Hour'. For this, it would be essential to activate the evacuation and transportation plan as detailed in the district crowd management plan. This plan may have identified routes, types of ambulances and support vehicles available at different levels with a resource inventory of paramedics, health personnel, quick medical response teams (QRMTs) and drivers.

- Each designated ambulance may have basic medical equipment for resuscitation, two-way communication devices, stretchers and essential

drugs. The support staff of the ambulance may be competent to use of the equipment available in the ambulance. SOPs for regular maintenance of the ambulance and its medical equipment may be laid down.

- Strict implementation of traffic rules and traffic management may be prioritised during such situations to prevent casualties on account of delays on congested roads.

- An adequate mechanism to prioritise the transport of critically injured persons by aerial evacuation and designated air ambulances may be developed as well.

- An inventory may be maintained for all emergency evacuation services, emergency medical personnel and paramedics.

- Emergency medical evacuation procedures may be appropriately rehearsed in the various inter-agency mock drills conducted for handling any HWC incident.

3.2.4. Off-site (support that can be provided to victims)

- Financial responsibility for treatment

- Medical treatment at hospitals—there may be tie-ups with local hospitals

- Tapping NGO schemes, if available, for (a) treatments at super-speciality hospitals for critical situations (severe burns, frostbite, disfigurement needing plastic surgery, organ transplants, etc.), (b) for meeting treatment costs at local hospitals and (c) for ex gratia support to nominees in case of death of staff members

- Counselling and psychological support in case of severe trauma and psychological problems that may arise from strenuous field conditions (remote locations, etc.) and challenging field circumstances (fighting forest fires, occasional violent/dangerous confrontations with wildlife, etc.)

3.2.5. Documentation of *ex-gratia* payments, if provided

- Official request letter to DFO/Field Director, etc. from ranges/beats/compartments

- Data on name: name, designation of staff member, date of birth, date, time and location of incident, brief description of incident, action taken (local treatment or treatment at local hospital/health centre), speciality hospitals, dates of admission and discharge, amount involved, donor agency, means of payment, nominee declaration/affidavit (in case of death)

- Documents (as relevant): death certificate, nominee details, copy of FIR, post-mortem, ID card, treatment history, copy of bank transfer of money/DD, etc.

- Media report clippings, if any

- Independent party verification reports for genuineness of cases

3.3. ENSURING LONG-TERM EMOTIONAL WELL-BEING OF HUMANS

- Incidents involving health emergencies due to HWC may result in emotional trauma. Therefore, humans in a HWC-related emergency may be screened for emotional trauma at government hospitals.

- If any evidence of emotional trauma is found, the victim may be provided counselling, alongside treatment of physical injuries.

- In case of long-term psychological impact, regular counselling sessions at the nearest government facility may be provided.

4. ADDRESSING WILDLIFE HEALTH EMERGENCIES

4.1. IDENTIFICATION OF WILDLIFE HEALTH EMERGENCIES

- **Self-Inflicted injuries:** Injuries caused due to panic and stress while trying to escape after human sighting or from trap or transportation cages with sharp edges after being trapped.

- **Accidental Injuries:** Injuries caused due to difficult undulating terrain, hidden traps, snares, electric fences, pits, wells, etc.

- **Human-Inflicted injuries/wildlife health emergencies:** Retaliatory attacks, feeding on poisoned carcasses, shooting with air rifles, injuries caused due to use of inappropriate physical or chemical capture methods, internal haemorrhage or organ rupture due to darting at a wrong anatomical site, overdosing or underdosing of immobilisation drugs, mishandling of immobilised animals, improper positioning of the immobilised wild animal resulting in choking, bloating, lung compression and aspiration of oropharyngeal or gastric contents.

- **Wildlife health emergencies caused by stress/panic:** Shock, anxiety, restlessness, capture myopathy, arrhythmia, respiratory distress, cardiac arrest, etc.

4.2. ADDRESSING WILDLIFE HEALTH EMERGENCIES ON-SITE

- Ensure ABC (airway, breathing & circulation).

- Measure the vital parameters like respiration, heart rate, pulse, temperature and blood pressure.

- Stabilise the animal using the available resources.

- Give the antidote if any complication has occurred due to overdosing or an allergic response to any immobilisation drug used.

- Check if any excessive bleeding is seen.

- Maintain the airway open.

- Look for any external injuries like cuts, wounds and burns.

- Infuse fluid/rehydrate if animal is dehydrated and compromised.

- Place the animal in a comfortable position under minimal required safe physical/chemical restrain to eliminate chances of animal hurting itself or the treating team.

- Respiratory stimulants and small oxygen cans may be used in case of respiratory arrest, if available, in your first aid kit by/under the guidance of a qualified veterinarian.

- Prepare the animal for transport to the nearest well equipped veterinary healthcare centre if the condition is critical and not manageable on-site. Else, shift the stabilised patient to the nearest rescue centre for further follow-up treatment & care.

4.3. ADDRESSING VETERINARY HEALTH EMERGENCIES DURING TRANSPORTATION

- Transport the animal only after providing first aid and stabilising it.

- A qualified trained veterinarian along with his/her assistant may accompany the animal either in an ambulance or in a separate vehicle following the ambulance.

- The ambulance speed may not be high as to cause stress and injury to the animal. Sudden jerks may be avoided.

- The transportation box may be properly secured in the ambulance, and its size may be such as not to allow turning or involuntary rolling of the animal sidewards or back and forth inside the box, causing further panic and injuries.

- The veterinarian may keep monitoring the vitals at regular intervals and continue providing fluids and oxygen if required.

- Top up the tranquiliser/sedative drug so as to maintain the animal in a stress-free, calm position.

- Hand over all the relevant treatment documents to the treating veterinarian of the hospital when you shift the animal for further advanced treatment.

4.4. ADDRESSING VETERINARY HEALTH EMERGENCIES AT RESCUE/ VETERINARY HEALTHCARE CENTRE/ OFF-SITE

- Measure the primary vitals and assess the health status of the animal.

- Go through the history of the injury/health issue and the treatment of the patient.

- Collect relevant biological samples and send them to the lab for investigations.

- Decide a plan of further treatment and instruct the attending staff to execute it.

- Provide the required life support through medicines and veterinary machines/devices according to the health status of the animal.

- Correlate the findings of the investigations with the clinical status, come up with a diagnosis and provide specialised treatment.

- Plan for the required surgery, if any, after proper stabilisation of the patient.

- Explain the actual health status, prognosis and risks involved in the surgery to the person in charge of the patient.

- Ask for a copy of the permission issued by the Chief Wildlife Warden for the immobilisation and treatment of the wild animal and get the consent form signed by the attendant or forest staff member in charge after explaining all the possibilities clearly.

- In case the required veterinary facilities are unavailable, refer the patient to the nearest higher centre.

4.5. ADDRESSING UNTREATABLE WILDLIFE HEALTH CONDITIONS

- In extreme conditions, when the health damage is beyond treatment and the animal is in great continuous pain, it is advisable not to prolong the suffering of the animal and present the case to the approved Euthanasia Panel through the proper channel, submitting all the relevant documents for their reference and requesting them to allow humane euthanasia for that animal as per the rules and regulations.

4.6 DOCUMENTATION

- Documentation of all relevant wild animal emergency healthcare provision after an incidence may be created for future reference. The case report may be in a suitable format which that is understandable and from which data can be easily gathered. These clinical records may include basic information regarding the case such as wild animal details, emergency steps taken and details of the veterinarian. These records must be clear, accurate, legible and documented in a scientific manner.

5. ADDRESSING VETERINARY EMERGENCIES IN DOMESTIC ANIMALS

5.1. IDENTIFICATION OF HEALTH EMERGENCIES

- Wild animals are implicated for attacking both livestock, like cattle, buffaloes, sheep and goats and pet animals (dogs, cats) staying in proximity of the forest habitats.

- Some observed conditions of animals after attacks that need immediate treatment are trauma, shock, poisoning, difficulty in breathing, persistent seizures, abnormal heart rhythms, loss of consciousness, excessive bleeding, prolapsed organs, potential snake bite, open wounds with extensive exposure of soft tissue or bones. These may usually be treated immediately.

- Common reasons for sudden death of an animal include airway blockage, breathing difficulty, cardiopulmonary arrest, circulatory failure, arrythmia, dysrhythmia, prolonged internal haemorrhage and massive external bleeding. Animal may be evaluated for the airway, breathing and circulation, as well as for level of consciousness. An animal may be checked for clear airways and breathing pattern by monitoring the chest movement. If the animal shows signs of difficulty in breathing/laboured breathing, immediate veterinary assistance may be obtained. Poor assessment and delay in attending to the - injured animal, may result in bad prognosis.

- Wounds may be assessed for the extent of damage and bleeding. In case of severe bleeding, further steps may be taken to check the bleeding.

5.2. ADDRESSING HEALTH EMERGENCIES

5.2.1 On-site

- While attending to animals after an attack, one may keep calm and not panic. Assess the site for any additional threats in order to ensure further safety. Put a blindfold on the animal and stabilise it with minimal movement, especially if there are signs of nervous system injury, broken bones or any chance of a spinal injury. Contact the nearby veterinarian as soon as possible.

- Basic veterinary care can be provided at the site of the injury. Injured animals or animals in pain, may have a tendency to bite or scratch and so

must be approached carefully. When a dog or cat is handled, a muzzle may be applied for the safety of the handler. If an animal has chest injuries or if the animal is a dog with a short nose (brachycephalic breeds like pugs), it may not be muzzled. A cloth may be placed over the head and eyes to keep the animal calm. Cats can be wrapped in a towel to reduce the movement and placed in a dark box with adequate holes for breathing and observation.

- Depending upon the extent of bleeding and the nature of the wound, the case may be attended. In case of minor bleeding, the wound area may be carefully washed with clean water till the bleeding stops. In case of severe bleeding, a pressure bandage may be applied.- A veterinarian may be contacted for further attention in case of sutures.

- The breathing of the animal may be monitored closely. In case of laboured or difficult breathing, the animal may be kept in a position to maintain the airway optimally. This can be due to excessive bleeding or due to snake venom. Quick veterinary assistance is advised in such cases.

- Poisonous insect bites and snakebites needs immediate treatment. Rapid and appropriate treatment is of paramount importance. Therefore, the patient may immediately be shifted to the nearest well equipped higher veterinary care centre.

5.2.2 During transportation

- An injured animal may be afraid and anxious, and it may become aggressive. Such a situation may lead to self-inflicted injuries due to pain and panic. It may be handled with utmost care. Small animals may be wrapped in any cloth, gunny bag or towel that is available and transported in a vehicle to the nearest veterinary assistance. In order to avoid stress due to transportation, efforts may be made to avail veterinary assistance for treatment of large animals on the site. In unavoidable circumstances, animals may be transported in a vehicle with an anti-slip floor. Animals shall not be left unattended during transportation, and care may be taken to drive slowly in order to avoid any further injuries. Ventilation may be provided appropriately to the animals.

- When moving or transporting an injured animal, care may be taken to minimize motion of its head, neck and spine. A flat, firm surface of wood, cardboard or thick fabric may be used to provide support. If the animal acts confused or disoriented after trauma, keep the head slightly elevated during transport. Jerking or thrashing motions may be avoided, and care may be taken to prevent anything from pushing on the neck or jugular veins. Placing small animals like pups, cats, kids and lambs in boxes can minimize the stress during transport.

5.3. DOCUMENTATION

- Documentation of all relevant domestic animal emergency healthcare provision after a wildlife attack may be created for future reference. The case report may be in a suitable format which that is understandable and from which data can be easily gathered. These clinical records may include basic information regarding the case such as animal demographic information, severity of infliction, wild animal demographic details, emergency steps taken and details of the veterinarian. These records must be clear, accurate, legible and documented in a scientific manner.

6. TAKING A ONE HEALTH APPROACH

6.1 OVERVIEW OF ONE HEALTH APPROACH

One Health is a collaborative, multi-sectoral and trans-disciplinary approach—working at the local, regional, national and global levels—with the goal of achieving optimal health outcomes, recognising the interconnection between people, animals, plants and their shared environment.

6.2 KEY STAKEHOLDERS

The personnel involved in human–wildlife interactions–such as the Rapid Response Teams, rescue team members, veterinarians, veterinary assistants, patrolling forest staff, mahouts, snake rescuers and wild animal attendants in zoos, rescue centres, monkey sterilisation centres and elephant camps, as well as public health personnel such as ASHA workers and anganwadi workers are vulnerable to a variety of zoonotic diseases that can be transmitted from animals to humans, apart from the risk of disease transmission from humans to domestic animals and wildlife.

6.3 KEY MEASURES TO BE IMPLEMENTED TO OPERATIONALISE THE ONE HEALTH APPROACH

- The basic approach may be to integrate the concept of One Health, which links human and animal health in a shared environment into all the operations and HWC mitigation measures in the field.

- Veterinary capacities and infrastructure may be upgraded to facilitate disease monitoring in wildlife populations, for both wildlife conservation and to prevent the spread of zoonotic diseases to livestock and human populations and *vice versa*.

- To reduce the biotic pressure on forests and prevent the spread of zoonotic diseases, it is desirable to stall-feed high-yielding cattle.

- A well-formulated Wildlife Health Management and Disease Surveillance Plan may be developed at every division/protected area (PA). One Health guidelines developed by national and international organisations such as WHO, FAO and OIE and existing regulations such as IHR (International Health Regulations) may be followed as per their applicability in different situations and set-ups.

- All personnel involved in capture operations may be trained, vaccinated and equipped. Joint training programmes for ASHAs, AWWs and the RRTs of the SFDs as well as the RRTs formed under the IDSP may be implemented to develop a common understanding of the key issues of HWC and One Health. Training of the para-clinical workforces from both the domains may also be crucial for filling in the gaps in the public health sector to prevent, detect and respond to zoonotic disease outbreaks in a timely manner.

- An effective disease surveillance and disease reporting system may be developed, including standardised protocols:

  - A disease surveillance programme may be carried out by the forest/wildlife department in collaboration with the medical health and animal husbandry departments.

  - Important zoonotic diseases may be identified and prioritised according to their epidemiological patterns.

  - Approved safety protocols (wearing PPE, prevention of occupational health hazards) may be followed during the collection, handling, conducting of investigations, packing and despatching of biological samples.

  - A coordination mechanism may be developed between wildlife, veterinary and public health agencies, wildlife biologists, environmentalists and scientists/researchers for carrying out field programmes and operations.

  - Inclusion of a One Health module in the curriculum of the wildlife, veterinary and medical graduation programmes may help in the education of these professionals and may improve the coordination and collaboration later on in the field.

- The institutional structures at the state- and district-levels, viz., State-Level Coordination Committee (SLCC) and District-Level Coordination Committee (DLCC), may be used for facilitating integration of the One Health approach into the state, landscape and district-/division-level planning.

7. COMPETENCY-DEVELOPMENT OF PERSONNEL RESPONSIBLE FOR HEALTH EMERGENCIES

- The Supplementary Framework to HWC-NAP, *Establishment and Capacity Development of HWC Mitigation Response Teams*, provides detailed advice on the capacity development approach for the personnel responsible for HWC mitigation and may be followed to plan and implement capacity development measures.

- A One Health approach may be adopted when planning and implementing training measures to prevent the spread of zoonotic diseases during HWC mitigation operations at sites where increased human–wildlife–domestic animal interactions take place.

- Each forest division may establish model animal health monitoring teams and standardise occupational health and safety protocols and integrate them with the operations of selected RRTs, including demonstration training programmes and procurement of disposable accessories/basic equipment needed for such training programmes. These RRTs may effectively coordinate with the RRTs established under the IDSP of the Ministry of Health & Family Welfare, Government of India, which are mandated to investigate the outbreak and response to all Infectious diseases, including zoonotic diseases. The IDSP RRTs consist of a multi-disciplinary team including veterinarians and wildlife officers.

- Community-based institutions, panchayats, farmers and women may be facilitated in strengthening their capacities to reduce the negative impacts of HWC as well as those of zoonotic and other emerging diseases. This may facilitate the response teams in addressing health emergencies more effectively.

- CPR and basic life-support training may be provided to all personnel of the field response teams by forest departments in cooperation with training institutions from the wildlife and veterinary sector, with a focus on occupational health and safety and animal welfare.

- Training in animal capture and translocation may be provided keeping in mind occupational health and safety to all veterinary experts and members of the field staff to ensure minimum exposure to zoonotic and other emerging diseases.

- Specific measures may be implemented to ensure that the efforts made towards capacity development are sustainable and effective. The following are some indicative measures:

  - Training institutions from the forest, agriculture–veterinary and public health sectors may be identified at the national level, and in each state, to act as the anchoring institutions for implementing training progrmes in health emergencies in HWC situations and for the One Health approach. These institutions may be facilitated to form a network for cross-sector knowledge and faculty exchange.

  - These training institutions may be facilitated by the respective ministries and state governments, in integrating training programmes addressing HWC-related health emergencies, adopting a One Health approach, into their regular curriculum.

  - These institutions may implement joint training programmes for the ASHAs, AWWs, para-veterinarians and wildlife workers to facilitate capacity development of these sectors in the prevention and control of zoonotic diseases.

- DLCC may facilitate joint training of the raid response teams from the forest department, IDSP, ASHA, AWW and other field teams of relevant departments and agencies, civil defense volunteers and home guards, casualty services personnel, local medical teams and other hospital staff, on regular basis.

- Procedures for the procurement, usage and maintenance of first aid/medical equipment may be established in line with the existing guidelines issued by the competent authorities. Procedures for the procurement, usage, storage and maintenance of drugs/medications/medical supplies may be established in line with the existing guidelines issued by the competent authorities.

8. MEDIA ENGAGEMENT

- During an HWC-related emergency situation, the media are bound to be around, to capture the news as it happens. To get to the action, media persons may get as close to the epicentre as possible. This could very well hinder the HWC mitigation operations and may lead to a spread of zoonotic diseases. To ensure that the conflict and zoonosis situation is handled carefully, keeping the safety of both humans and animals, fthe ollowing indicative actions taken, which may be beneficial:

- **Engaging with media professionals in an HWC-related crisis situation.** Dedicated forest officials trained in media engagement may engage with media persons, delegating other members of the team to deal with the crisis. A good practice is also to quickly share a clearly written, crisp media release as soon as possible.

- **Planning for public outreach in times of crisis.** It may be effective to use multiple media outlets—print, TV, radio/FM, online, social media—to broadcast messages, asking the public not to panic, not to leave the safety of their homes and come out or attempt to harm a wild animal-in-conflict during an HWC situation.

- **General coordination between forest department and media during emergency situations.** During an HWC-related emergency, the forest department may involve and seek help from local press clubs, press associations and similar bodies to ensure that the media persons do not take undue risks.

Guidelines for Cooperation between the Forest and Media Sector in India: Towards Effective Communication on Human—Wildlife Conflict Mitigation, Taking a Harmonious Coexistence Approach may be referred to for further details on engaging with the media in health emergencies.

9. USE OF TECHNOLOGY

- Use of the Early Warning and Rapid Response (EWRR)[5] system, development of advanced diagnosis and surveillance tools and use of new technology may enhance the overall efficiency of mitigation efforts in the field, effectively address health emergencies and prevent zoonotic and other emerging diseases.

- Division-wise mapping of health infrastructure for humans, wild animals and domestic animals on a single GIS platform may facilitate the first responders to effectively address the situation, and may also strengthen the inter-agency coordination.

10. ETHICAL CONSIDERATIONS

- All care should be taken to address the issues of animal welfare and animal rights as enshrined in the Constitution (articles 48A and 51A(g)), the statutory provisions of the Indian Penal Code (sections 428 and 429), the Prevention of Cruelty to Animals Act of 1960 (Section 11(1)(h) and Section 11(1)(d)) and the Motor Vehicles Act, 1978 (Transport of Animal) Rules, 2001.

- Efforts may be made to strengthen inter-agency cooperation, and to receive support from local agencies responsible for law and order so that the emergency operations are completed without delays and the health and well-being of humans and animals are ensured.

- Ethical considerations are the essence of the rule of law. Therefore, action taken to address HWC should be in conformity with human and animal rights, within the framework of existing legal provisions.

- Further measures to address the health of the specific species of wild animals-in-conflict during capture, translocation and post-capture management are provided in the species-specific guidelines, as indicated in Section 1.1 of these guidelines.

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5   EWRR is a set of tools, processes and personnel competencies needed for timely and meaningful generation and dissemination of alert information to individuals, communities and establishments at risk, for optimal preparedness and responses at the appropriate time, to reduce the likelihood of injury, death or crop damage. EWRR structurally includes an HWC Mitigation Hub/Control Room and a system of three-tiered response teams, viz., Division-Level Rapid Response teams (Division RRTs), Range-Level Rapid Response Teams (Range RRTs) and village-/ward-level Primary Response Teams of the local community (Community PRTs).

11. USE OF LEARNINGS FROM THE GUIDELINES TO FURTHER STRENGTHEN INSTITUTIONAL AND POLICY FRAMEWORK ON HEALTH EMERGENCIES IN HWC SITUATIONS IN INDIA

These guidelines are expected to serve as a capacity development instrument, given that a robust and structured feedback mechanism will be put in place by the DLCCs and SLCCs to document the feedback received from the implementation of these guidelines.

- The feedback from the use of these guidelines may, therefore, be consolidated to form the basis for fine-tuning health emergencies and addressing the long-term risk of zoonotic and other emerging diseases during an HWC and for understanding capacity needs for effectively implementing the inter-agency coordination mechanism and taking a One Health approach.

- In the long term, the feedback may be consolidated and used in further revising/updating the capacity development strategies, Division-Level HWC Management Action Plans and National and State HWC Strategy and Action Plans.

- Feedback from the inter-agency teams may be used to further strengthen our understanding of the operationalisation of the One Health approach.

12. PROCESS OF DEVELOPMENT AND PILOT TESTING OF THESE GUIDELINES AND THE CONSULTATION PROCESS

- A dedicated framework of experts (Annexe 1) was formed, with the core team consisting of representatives from government agencies, SFDs, research institutions, civil society institutions and international organisations and independent wildlife policy experts. The experts were a mix of scientists, wildlife managers, public health experts, medical professionals, veterinary experts, policy experts and capacity development experts.

- A common understanding was developed on the overall purpose, scope, approach and methodology[6,7]. The experts had different roles in the drafting and editing process, viz., they were Coordinating Lead Authors, Lead Authors, Contributing Authors and Review Editors. The Author Group worked on developing these guidelines between July 2019 and August 2021, during which period they consulted a larger group of experts and stakeholders via workshops, meetings and consultations. The authors reviewed the documents and guidelines available from the MoEF&CC and different states, and relevant information and recommendations were brought into the new document. The National Technical Group (NTG), consisting of experts from MoEF&CC, Wildlife Institute of India (WII) and *Deutsche Gesellschaft für Internationale Zusammenarbeit*

(GIZ) and independent wildlife and policy experts, was formed for the overall steering and facilitation of the process. The Working Group on Pilot Implementation of Guidelines and HWC-NAP was formed to facilitate the planning and implementation of the pilot testing, consultations and final editing of the draft guidelines and HWC-NAP. Detailed terms of reference were provided for each category, and meetings and workshops of the Author Group were facilitated under the Indo-German Cooperation Project on Human–Wildlife Conflict Mitigation.

- The draft guidelines and HWC-NAP were pilot tested at selected HWC hotspots in India to receive feedback on the feasibility and acceptability of the recommendations expressed in the guidelines, using a structured process and tools. On the basis of the feedback received during fortnightly meetings and one-to-one consultations with managers, the draft of the guidelines was revised.

- A committee was constituted by MoEFCC in December 2022, consisting of officials from MoEFCC and the state forest departments of Bihar, Haryana, Karnataka, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal to review and finalise the guidelines.

13. MONITORING AND EVALUATION OF GUIDELINES

- This set of guidelines is not a static document; rather, it is a living document. It will keep abreast of the various developments in field implementation methods and wildlife research. For this, the feedback from field practitioners and other wildlife experts may be analysed to assess the specific elements and sections that need to undergo changes. A review of the guidelines is planned every 5 years, from 2023 onwards. However, a

mid-term review process in 2024 may be desirable. In the long term, the review cycle of these guidelines can be aligned with the review cycle of HWC-NAP.

- A detailed mechanism, templates and guidance for collating information and feedback related to the use of these guidelines may be developed.

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6   Approach paper: https://indo-germanbiodiversity.com/pdf/publication/publication19-04-2021-1618808050.pdf
7   Human-Wildlife Conflict Mitigation Instrument- Strengthening Capacities to Address the issues related to zoonotic and other emerging diseases: Taking a One Health Approach publication02-06-2022-1654169065.pdf (indo-germanbiodiversity.com)

ANNEXE 1

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Ministry of Environment, Forest and Climate Change
Government of India
2023