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Human-Wildlife Conflicts in India: The Legal Sphere and the Lacunae

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ABSTRACT

Human-wildlife conflicts are described as the negative interactions that occur between humans and wildlife, resulting in detrimental impact to humans, wildlife and the available resources. The Wildlife (Protection) Act, of 1972 confers the highest degree of protection to animals contained in schedule I of the act. However, the majority animals contained therein are found outside the protected areas, rendering them unsafe due to their conflicts with humans. The lack of a specific legislation dealing with human-wildlife conflicts, and the disregard for the existing legal framework invigorates the extinction of several keystone species. It is undeniable that such conflicts impact both humans and animals; however, wildlife is compelled to pay a heavier price because of anthropocentric bias towards man. The landmark incident of tigress Avni's killing put the spotlight on the complex nature of wildlife conservation in India and the emerging challenges. Even though it is not possible to completely eradicate these conflicts, effective community based mechanisms having strong legislative backing can aid in the mitigation of such incidents and pave the way towards the harmonious co-existence of humans and wildlife.

This research paper aims to analyze the causes of the increase in incidents of human-wildlife conflicts along with the legislative lacunae surrounding the issue and provides solutions to minimize them.

Keywords: *human-wildlife conflicts, keystone species, legislations, conservation, mitigation.*

I. INTRODUCTION

The human-animal relationship dates back to more than 15,000 years and has been constantly evolving. In prehistoric times, early men utilized complex hunting techniques to ambush and kill several wild animals to make them a part of their diet and clothing, yet, the wildlife managed to keep pace with the human survival needs. The depletion of their number, however, started as a result of human evolution that brought along technological advancements and desire for economic development.² As the population and ambitions of humans enhanced, so did their

¹ Author is a Student at Himachal Pradesh National Law University, India.

² INDRILA GUHA, TUHIN K. DAS, ECONOMICS OF MAN-ANIMAL CONFLICT: A LESSON FOR WILDLIFE CONSERVATION 4, (abc publications 2003).

competition with wildlife for resources and territory. This competition gave rise to what is called “human-wildlife conflicts”. Human-wildlife conflicts can be described as the negative interactions between humans and wildlife and their resultant detrimental impact on humans, animals, and the available resources.³

It might be the common notion that wildlife crimes, habitat loss, and climate change are the major sources of human-driven biodiversity loss; however, the truth is that killings related to conflicts affect about 75% of wild cat species world-wide, along with several terrestrial and marine species worldwide.⁴ The role of citizens in conservation is of utmost importance, however, these conflicts hit right at the core, causing the community's loss of empathy for wildlife. The findings of a joint report by the World Wide Fund and the UN Environment Programme indicate human-wildlife conflict as the major threat that adversely impact survival of the world's most emblematic species as defensive or retaliatory killings holds the potential to drive them to extinction.⁵

The forest area of India covers 21.54 percent of country land, a mere 4 percent is covered by animal reserves, and the protected area covers only 4.95 percent of the total land. This meager portion of land is home to nearly 3,000 tigers, around 30,000 elephants, over 3,000 rhinoceros, and thousands of other wildlife species.⁶ It is quite intuitive that if wild animals are restricted to 3-4 percent of their original habitat, they would nonetheless venture out, causing confrontation with humans. The foothills of the Himalayas, Sunderban delta, Western Ghats, and a few other regions in the northeast India are deeply affected by human-wildlife conflicts arising out of such confrontations.

II. MAJOR CAUSES OF HUMAN-WILDLIFE CONFLICTS

1. **Conversion of forest land-** Global human population growth is around 75 million annually. This population boom has led human settlements to encroach upon wildlife territories. Conversion of forest land to meet alternate land uses such as agriculture, cattle pasture, mining, etc. compels wildlife to enter into human colonies.⁷ In India, The

³ Philip P. Nyphus, Human–Wildlife Conflict and Coexistence, 4 ANNU. REV. ENVIRON. RESOUR. 42, 143-144, (2016).

⁴ A future for all: The need of human wildlife coexistence, <https://www.unep.org/resources/report/future-all-need-human-wildlife-coexistence> (last visited on Sept 28, 2022).

⁵ Redpath, J. Young, A. Evely, W. M. Adams, W. J. Sutherland, R. A. Lambert, J. Linnell, R. Gutierrez, Understanding and managing conservation conflicts, 28 TRENDS ECOL 100, 100-101, (2013) <https://www.cell.com/action/showPdf?pii=S0169-5347%2812%2900216-9>

⁶ Awadhesh Kumar Mishra, P Bhanumati, Rajesh Kumar Panwar, Nikita Kumari, Rajiv Roshan, ENVISTATS INDIA , 73,1 (2021), https://mospi.gov.in/documents/213904/958018/1617190446306_ES1_2021_Complete.pdf/07279fbb-5ff5-ee38-23fd-a5b64645b9fe

⁷ Hodgson, I. D., A. Fischer, S. M. Redpath, and J. C. Young, Fight or flight? Understanding different stakeholder

Forest Conservation Act, 1980⁸, regulates the conversion of forests for non-forest purposes, and the Compensatory Afforestation Fund Act, 2016⁹, contains provisions regarding funds for compensatory afforestation, however, their provisions barely compensate for the biodiversity loss caused due to deforestation and in turn promote monoculture, which paradoxically results in loss of biodiversity.

2. **Monoculture-** Natural ecosystems are an amalgamation of a wide variety of plant species that support diverse wildlife communities. The plantation of mixed species provides herbivores with requisite food and carnivores with adequate shelter.¹⁰ On the contrary, the monoculture of species like teak or timber not only serves as ‘green deserts’ for the animals but also disrupt ecosystem services like pollination and biological control.
3. **Urbanization-** In India, there is a long list of laws that aim to protect the environment and forests. The constitution itself sheds light on the duty of the state and citizens in the conservation of biodiversity and the environment through provisions like Article 48 (A)¹¹ and Article 51(A)(g)¹². However, in absence of a self-governed regulatory body, rapid unplanned urbanization continues, exposing wildlife to man-made stress through habitat fragmentation where larger habitat webs are split into smaller unconnected patches.
4. **Less prey base-** Wild prey availability plays an important role in human-wildlife conflicts. Natural disasters like droughts or floods cause a dearth of natural food source for herbivores which in turn affects the carnivores. Seasonal prey migration and wildlife crimes also play a significant role in declining prey availability¹³. This dearth of food source pushes the wild herbivores towards the human crops and carnivores towards the livestock, causing confrontation and conflict.
5. **Biological factors-** The position of an animal in the spectrum of problematic behavior often depend upon factors like its age, health and sex. For example, young male animals are more prone to indulging in high-risk behavior because of limited experience or

responses to conservation conflicts, 2 SNR 12, 18-19 (2022).

⁸ The Forest Conservation Act, 1980, No.69, Acts of Parliament, (India).

⁹ The Compensatory Afforestation Fund Act, 2016, No. 38, Acts of Parliament, (India).

¹⁰ S. Vijayan, B.Pati, Impact of Changing Cropping Patterns on Man-Animal Conflicts Around Gir Protected Area, 23 POL AND ENV 1, 2-3 (2002). <https://www.semanticscholar.org/paper/Impact-of-Changing-Cropping-Patterns-on-Man-Animal-Vijayan-Pati/0f6074fc9990b75d3a75a6fef25e51e3f79628b9>

¹¹ INDIA CONST. art. 48 A.

¹² INDIA CONST. art. 51 A, cl. g.

¹³ Supra note 2, at 146.

raging hormones. Additionally, injured, ailing or old animals have a higher probability of engaging in livestock depredation, crop raiding, or killing of humans.¹⁴ This is because they can no longer compete for wild prey or have been displaced to suboptimal habitat by younger competitors.

III. PRECEDENCE OF RIGHTS: THE HUMANS V. WILDLIFE PREDICAMENT

Often a dilemma arises when the issue of human-wildlife conflicts is brought up, as the rights of animals and humans clash fiercely in such incidents. The honourable Supreme Court has expressed its concern regarding the laws surrounding human-wildlife conflicts as reflected with respect to the case of T.N Godavaram Thirumulpad V. Union of India¹⁵, wherein it stated “Laws are man-made, hence there is a likelihood of anthropocentric bias towards man, and rights of wild animals often tend to be of secondary importance. In the universe man and animal are equally placed, however the human rights approach to environmental protection is often based on anthropocentricity.”

It has been well established time and again in cases like Animal Welfare Board of India v. A. Nagaraja & Ors¹⁶, that the protection of life and personal liberty under Article 21 of the constitution¹⁷ extends to every form of life including animal species, however, take for an example an incident of crop raiding; in such a scenario the underlying fundamental right of the field owner to follow chosen profession, or to undertake any occupation mentioned under Article 19 (1) (g)¹⁸, is given precedence over the animal’s right to feed himself. There is nothing wrong with protecting human rights in incidents of human-wildlife conflicts, in fact, in cases where the safety of public is at peril, lethal management of wild animals cannot be avoided. However, before taking any lethal measures, the doctrine of proportionality must be applied. This doctrine is used as a criterion of fairness and justice in statutory interpretation process, as a rational method to assist in discerning the appropriate balance between the objective of a policy or provision and the means adopted to achieve them. Therefore, this doctrine would suggest resorting to lethal management of wild animals only when no other less destructive or intrusive method can be applied to that situation.

IV. THE IRONY OF BEING PROTECTED YET UNSAFE

¹⁴ Kate Graham, Andrew P., Human-Predator-Prey Conflicts: Ecological Correlates, 2 CONSERV. BIOL. 155, 169-170 (2005), https://www.researchgate.net/publication/222576635_Human-Predator-Prey_Conflicts_Ecological_Correlates_Prey_Losses_and_Patterns_of_Management

¹⁵ T.N Godavaram Thirumulpad V. Union Of India, writ petition (civil) No. 202 of 1995.

¹⁶ Animal Welfare Board of India V. A. Nagaraja & Ors, Special Leave Petition (Civil) No. 11686 of 2007.

¹⁷ INDIA CONST. art. 21.

¹⁸ INDIA CONST. art. 19, cl. 1, sub-cl. g.

There is no specific law in India that deals exclusively with human-wildlife conflicts; however, a comprehensive legislation regarding the protection of wildlife was passed by the Parliament on 9th September 1972, known as The Wild Life (Protection) Act, 1972.¹⁹ Schedule 1 of the act provides the highest degree of protection to animals listed therein. They can be killed only when they pose serious danger to human life or they are disabled or terminally ill without any chance of recovery. Under section 11 (1) (a)²⁰, only the Chief Wildlife Warden can permit hunting of such animal with valid reason in writing the reasons thereof. However, cases emerge frequently where civil authorities unofficially aid and abet the killing of ‘problematic animals’ by private hunters with questionable experience and skill. Such reckless decisions in turn increase human-wildlife conflicts through the injuries caused to animals by these hunters.

There are 990 protected areas in India²¹, however, a large number of Schedule 1 species reside outside these notified areas rendering them unsafe, despite their protected status due to their negative interactions with humans. It must be noted here that not all killings of wild animals in conflict situations are mala fide. The perception of risk is a critical element in wildlife conflict, and it has often been observed that a mismatch exist between the risk perceptions, the actual degree of risk, and response to proportional risk. Humans fear predatory animals owing to their evolutionary survival psychology, whereas even apex predators fear humans because they appear novel to them. Whenever they both confront each other, they attack out of fear, fueling further conflicts. Section 11(2) of the Wildlife (Protection) Act, 1972²² permits the killing or wounding in good faith of any wild animal in defense of oneself or of any other person. This section is often misused to kill innocent wild animals whenever slightest inconveniences arise. While certain killings of wild animals are done within the legal ambit, the majority of them happen illegally. For example, the recent Ministry of Environment, Forest and Climate Change data stated that 1,160 elephants perished in India due to reasons not related to natural causes which included poisoning, poaching, and electrocution.²³ This indicates towards a dire need of a stringent checks and balances mechanism, which keeps a close watch on human-wildlife conflicts and the related killings.

In order to fulfill the commitments regarding sustainable use of biodiversity made by India to the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES),

¹⁹ The Wildlife (Protection) Act, 1972 No. 53, Acts of Parliament, 1972 (India).

²⁰ The Wildlife (Protection) Act, 1972, §11(1), No. 53, Acts of Parliament, 1972 (India).

²¹ National Wildlife Database Cell, https://wii.gov.in/nwdc_aboutus, (last visited on Sept 28, 2022).

²² The Wildlife (Protection) Act, 1972, § 11(2), No. 53, Acts of Parliament, 1972 (India).

²³ 1,160 ELEPHANTS KILLED DUE TO REASONS OTHER THAN NATURAL CAUSES <https://www.thehindu.com/news/national/1160-elephants-killed-due-to-reasons-other-than-natural-causes-moefcc/article37796114.ece> (Last visited on 14th September).

The Wild Life (Protection) Amendment Bill, 2021 was introduced in the parliament in December 2021, after which it was referred to the standing committee. The standing committee rightly pointed out the absence of any provision dealing with instances of man-animal conflict.²⁴ The union environment ministry was asked by the committee to insert a section for the constitution of a human-wildlife conflict management advisory committee. It also suggested laying down of specific criteria for selection of committee, members with the Chief Wildlife Warden of the state holding the key responsibility as its chairperson, and vice-chairperson, an officer belonging to the state police department, two eminent ecologists (wildlife) experienced in human-wildlife conflict mitigation, a veterinarian (wildlife) experienced in translocation and chemical mediated immobilization of conflict-prone species. According to the suggestion, a NGO representative experienced in management and mitigation of human-wildlife conflict, and a sociologist were also to be included as members. While, provisions exclusively dealing with human-wildlife conflicts are long-awaited, the effective enforcement of the existing laws would also aid in substantially reducing unwarranted killings of animals resulting out of conflicts.²⁵

V. THE CURIOUS CASE OF TIGRESS AVNI'S KILLING

The Project Tiger launched in the early 1970s has been a huge success in the conservation of tiger population in India, but the escalation in the number of tigers hasn't been met with a proportional rise in quality habitat for their survival, forcing them to venture out into human habitat. Avni was a Royal Bengal tigress who ventured out of Tipeswar Wildlife Sanctuary into Pandharkawada forests of Yavatmal district in Maharashtra. She was given the tag of 'man-eater' for allegedly killing and devouring 13 humans.²⁶ The first order to shoot Avni was issued in January 2018 but Nagpur bench of the Bombay High Court stayed it as she was observed along with her cubs. The final order regarding her was pronounced in September 2018 wherein the Supreme Court directed the forest department to tranquilize Avni and permitted killing her in inevitable circumstances.

Following this order, a massive hunt involving, infrared cameras, 200 Para gliders and Calvin Klein fragrances was launched.²⁷ On the night of 2nd November 2018, Avni was shot by Asgar

²⁴ Jacob Koshy, Parliamentary panel for body to address man -animal conflict, INDIA TIMES (April 21,2022, 8:13 PM), <https://www.thehindu.com/news/national/parliamentary-panel-for-body-to-address-human-animal-conflict/article65341834.ece>

²⁵ *Id.*

²⁶ Gursharan Bhalla, Timeline Of Tigress Avni's Killing Blamed For 13 Deaths And The Controversy Around It, INDIA TIMES (26 Feb, 2021, 5:19 PM), <https://www.indiatimes.com/news/india/tigress-avni-killing-timeline-535167.html>

²⁷ TIMELINE OF TIGRESS AVNI'S KILLING BLAMED FOR 13 DEATH, <https://www.indiatimes.com/news/india/tigress-avni-killing-timeline-535167.html>, (last visited on Sept 28 2022).

Ali Khan, a private shooter. According to the statements made by the shooter, the forest guard accompanying him made a sincere effort to tranquilize Avni, however, the tigress charged at their team following which the trigger was pulled out of compulsion.

However certain points came to light after this event-

- i. The forest department had hired hunter Shafqat Ali Khan and not his son Asgar Ali Khan, who used his father's gun to shoot Avni.
- ii. As per the guidelines of the Veterinary council of India, only a state-registered veterinarian can administer tranquilization, however, no veterinarian was present when Avni was tranquilized.
- iii. The team was ill-equipped to deal with the sedated tiger, as they lacked reversal drugs, net, capture cage, stretcher, and manpower to locate Avni after tranquilization³¹.
- iv. The post-mortem report submitted by Milind Pariwakam, a wildlife expert, was accompanied by 2 diagrams that suggested that at the time of firing Avni was facing away from the person who fired the bullet.
- v. According to the post-mortem report, the dart lodged in its left thigh did not indicate any impact of being 'fired from syringe projector' as the dart did not penetrate the underlying muscle and no hematoma was observed.
- vi. It was later discovered that the forest officials engaged in rewarding and honouring the hunter who killed Avni, which was a direct contempt of the order of the Supreme Court.

The manner in which this operation was carried out led to violations of NTCA guidelines, Wildlife Protection Act 1972²⁸, Arms Act 1959²⁹, and the judicial orders of the Supreme Court. The inconsistencies in the events leading up to the killing of this flagship specie put the spotlight on the complex nature of wildlife conservation in India. However, a commendable step taken by the National Tiger Conservation Authority was made public through their letter dated 11th November 2019 wherein they put an end to the hiring of private hunters by the forest department. Additionally, the terminology 'man-eater' that suggested wildlife species are conscious human antagonists, was replaced with 'animals dangerous to human life'.³⁰

²⁸ The Wildlife (Protection) Act, 1972, No. 53, Acts of Parliament, 1972 (India).

²⁹ The Arms Act, 1959, No. 54, Acts of Parliaments, 1959 (India).

³⁰ NTCA REPLACES MAN EATER TAG, <https://indianexpress.com/article/india/ntca-bars-killing-of-tigers-by-private-shooters-wildlife-act-still-allows-it-6123428/>, (last visited on Sept 28, 2022).

VI. THE GENERAL RESPONSES TO HUMAN-WILDLIFE CONFLICTS

Traditions, beliefs, religion and geo-political scenario often shape responses to human-wildlife conflicts. In order to decipher why various remedial strategies developed world wide lack global implementation, it is essential to underscore that although the management strategies have similar goals, they are not identical. Such remedial policies are embedded in different social, ecological, and economic and cultural realities. Additionally, they are also targeted toward different taxonomic groups. In India, often when incidents of man-animal conflicts arise, ‘quick fix’ methods like translocation or neutralizing are applied rather than conservational ones. Such techniques fail to consider the wider social aspect and can lead to increased tensions in future.

The case of Bwindi Impenetrable Forest National Park in southwestern Uganda needs mention here. This park is home to 400 of the last 880 mountain gorillas on Earth. In the late 90s, the human-gorilla conflicts in the region were being managed through a misguided policy wherein translocation was nationally promoted as the panacea for all human-wildlife conflicts. Complete disregard was paid to the root causes of the conflicts and long-term strategies such as land-use planning, habituation and inclusion of local community in decisions making process. Later, due to the limited area of the park, the high health risk to the gorillas, and the enormous expense being incurred, translocation proved to be a complete failure in mitigating human- gorilla conflicts.³¹

Another recent example comes from Karnataka where Arecanut and coconut plantations are frequently raided by bonnet macaques. In 2021, the conflicts reached a violent infection point and in an attempt to curb the conflicts, 38 monkeys lost their life due to asphyxiation during capture and relocation operation.³² The Karnataka High court took *Suo moto* cognizance of the matter and pointed out the gross violations under sections (3)³³ and (11)³⁴ of The Prevention of Cruelty to Animals Act, 1960. According to a report, the bonnet macaque population has reduced to 65 % in southern India since 1989.³⁵ This indicates that the Karnataka Government’s approach of mass sterilization and relocation of macaques may not only fail to restrict the

³¹ Francis M. Madden, *The Growing Conflict Between Humans and Wildlife: Law and Policy as Contributing and Mitigating Factors*, 11 *J INT. WILDL. LAW POLICY* 189, 192-194 (2008) , <http://re.indiaenvironmentportal.org.in/files/The%20Growing%20Conflict%20Between%20Humans.pdf>

³² Mohit M. Rao, *Quick solutions for human-monkey conflicts could lead to dangerous results*, MONGABAY (7 September 2021, 11:45 AM), <https://india.mongabay.com/2021/09/quick-solutions-for-human-monkey-conflicts-could-lead-to-dangerous-results/>

³³ The Prevention of Cruelty to Animals Act, 1960 § 3 No. 59, Acts of Parliament, 1960 (India).

³⁴ The Prevention of Cruelty to Animals Act, 1960 § 11 No. 59, Acts of Parliament, 1960 (India).

³⁵ Joseph J. Erinjery, Mewa Singh, K. Mohan, *Losing its ground: A case study of fast declining populations of a ‘least-concern’ species*, 8 *PLOS ONE* 19, 21-22 (2017), <https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0182140&type=printable>

conflict but also paradoxically inflict adversities on the macaques and the farmers.

Targeted species should be managed based on systematic collection of long-term data in a suitable format to support taking of right decision. Analysis of long-term research data using vegetation sampling and habitat surveys centered around assessing the population of wild animals in high conflict prone zones should be prioritized. Marking of conflicted areas, with detailed information on the nature of conflict and frequency must be collected for better preparedness. The National Green Tribunal too highlighted the importance and need for long term strategy to minimize human-wildlife conflicts in forest villages in Tribunal on its own motion V. Ministry of Environment, Forest and climate change³⁶, when a pregnant wild elephant in Silent Valley Forest had fallen prey to a human act of keeping explosive substance in a pineapple which was consumed inadvertently resulting in her painful death, simultaneously damaging the fetus.

VII. LAW AS A MISSING LINK IN HUMAN-WILDLIFE CONFLICT STUDIES

Well-framed laws and policies have a critical role to play in effecting a harmonious relationship between humans and wildlife. Various suites of policy responses have been used to address human-wildlife conflict worldwide. However, the role of law has only received superficial recognition in studies pertaining to such conflicts³⁷. This might suggest that law and policy are not viewed as critical factors impacting the attitudes encompassing the conflict, but instead are viewed as an outcome of it, which is harmful to the conservational aspect of human-wildlife conflicts. In a research conducted on several state laws' effects on human-wildlife conflicts, it was seen that the law had mixed and at time negative consequences on Human-wildlife conflicts. Several reasons were substantiated as to why the law did not prove effective in managing such conflicts.³⁸ Some of the common reasons include:

- i.** Absence of transparency
- ii.** Apathy of locals in support of law
- iii.** Limited community consultation

³⁶ Tribunal on its own motion V. Ministry of Environment, Forest and climate change, Original Application No. 77 of 2020.

³⁷ Evan Hamman, Katie Woolastin and Bridget Lewis, Legal responses to man-animal conflicts: The Precautionary Principle, Risk Analysis and the 'Lethal Management' of Endangered Species, 7 IUCNAEL 53, 56-57 (2016), https://www.researchgate.net/publication/309319771_Legal_responses_to_human-wildlife_conflict_The_precautionary_principle_risk_analysis_and_the_lethal_management%27_of_endangered_species

³⁸ Katie Woolaston, Emily Flower, Julia van Velden, Steven White, Georgette Leah Burnsm Clare Morrison, A Review of the Role of Law and Policy in Human-Wildlife Conflict, 19 CONSERV. SOC. 172, 180 -183(2021), https://www.jstor.org/stable/pdf/27081498.pdf?refreqid=excelsior%3Af22a2745313df85c585863425d13c4f0&a_b_segments=&origin=&acceptTC=1

- iv. Presence of top-down legal and management approach
- v. Lack of implementation of the law

This holds a much-needed lesson for Indian policy makers when it comes to enforcing the laws that are already in existence and framing provisions that are human-wildlife conflict specific. It must be kept in mind that poorly framed laws and an inefficient enforcement mechanism can prolong or exacerbate the existing conflicts. Rather, those approaches must be encouraged that involve working in unison to resolve wildlife-conservation conflicts proactively, including information sharing and education, co-management, collaborative planning and risk assessments to alter perceptions. Therefore, a multidimensional approach involving all stakeholders is the most effective solution to minimize these conflicts from their roots causes.

VIII. WAYS TO MITIGATE WILDLIFE CONFLICTS

1. **Use of barriers-** The use of Barriers and exclusionary devices to curtail wildlife conflicts is well known. Such exclusionary devices can include constructed barriers like fences or natural barriers like planted vegetation. The Uttarakhand government is using bio fencing by planting lemongrass to deter elephants, agave to repel wild boars, ram bans, and certain species of chilly for other wild animals³⁹. Fencing not only separates wildlife territory from human habitat but also limits the spread of invasive species, restricts transmission of disease, protects keystone species, and highly threatened species.
2. **Monitoring-** The movement of wild carnivores or large herbivores near human habitations should be monitored through impression pads created near sensitive areas and water holes. Camera traps, radio collaring, and GIS mapping are also effective methods of tracking the movement of wild animals.⁴⁰ In the Valparai region of Tamil Nadu, the local community plays a pivotal role in monitoring the movement of elephants. Whenever the giant is sighted, information is sent to the authorities who then alert individuals residing near elephant corridors via SMS. This warning system has helped in sharply declining the human-pachyderm conflicts in the region.⁴¹

³⁹ BIOFENCING : A UNIQUE YET EFFECTIVE METHOD,

<https://www.financialexpress.com/lifestyle/science/biofencing-a-unique-yet-effective-method-to-tackle-human-animal-conflict-in-uttarakhand/1710763/> (last visited on 26th September 2022).

⁴⁰ D.S Meena, B.P Baluni, M. Bisht, Human-Wildlife conflict in Uttarakhand, 11 Proc. Int. Acad. Ecol. , 100- 102 (2021), [http://www.iaees.org/publications/journals/piaees/articles/2021-11\(3\)/human-wildlife-conflict-in-Uttarakhand.pdf](http://www.iaees.org/publications/journals/piaees/articles/2021-11(3)/human-wildlife-conflict-in-Uttarakhand.pdf)

⁴¹ ANANDAKUMAR MAVATHUR, HUMAN-WILDLIFE CONFLICT IN THE MOUNTAINS OF SAARC REGION 46 (SAARC forestry centre 2014)

3. **Sensitization-** The government and the NTCA frequently chart out relocation plans and guidelines for villages falling in critical wildlife habitats. However, relocation of villages requires deliberate planning and heavy expenditure, making it a sluggish process⁴². Therefore, knowledge must be disseminated among the local communities falling in core forest areas regarding the safe disposal of livestock carcasses and other garbage, to prevent wild carnivores like panthers and tigers from subsequently becoming residents in the locality. Additionally, locals must be made aware of basic animal behavior, and apt conduct in case of confrontation. For example, in the Sundarbans, locals often wear backward-facing masks on their heads, which deter attacks from tiger, who is attuned to avoid frontal attacks on humans.⁴³
4. **Compensation-** The people who live in the vicinity of forests or buffer zones of national parks frequently suffer the loss of crops, loss of assets, and loss of life due to attacks by wild animals. In India, there are compensatory schemes specifically dealing with man- animal conflicts; however the mechanism to get the claims verified is often filled with impediments like corruption and undue delay. It is pertinent to note that the cost-benefit ratio plays a huge role in human-wildlife conflicts, where the cost refers to the cost of damage brought about by wild animals, and the benefit means the utilization of wildlife resources. When this cost is higher in comparison with the benefit, conflicts arise.⁴⁴ Therefore, providing the victims with appropriate and timely compensation would lower the cost of damage, thereby minimizing retaliatory killings. Additionally, the generation of alternative employment opportunities in forest and buffer-zone villages would reduce traditional dependency on wildlife habitats by lowering the benefit arising out of the forest, boosting the benefit-cost relationship.

IX. CONCLUSION

India has numerous environmental protection laws; however, we are not yet victorious in accomplishing the demands of environmental protection, majorly due to the lack of political will and public recognition of the issue. Additionally, most of our environmental laws are humanistic, principally contemplating the protection of humans and welfare, and are not unequivocally meant for the protection of the environment in which humans reside.

⁴² Supra note 52, at 104.

⁴³ CHANDAN SURABHI DAS, ANALYSING MAN-ANIMAL CONFLICTS IN SUNDERBANS 345 (WWF-India 2017)

⁴⁴ TUHIN K. DAS, supra note 1, at 23

Overpowered by anthropocentric bias, it must not be forgotten that humans depend on biodiversity in ways that are not always apparent or appreciated. Biodiversity underpins the health of the planet and colossal loss of wildlife would leave humanity with an unsustainable economy, shortage of food resources, crippled health system, and vulnerability to natural disasters. Methods to curb complex human-wildlife conflicts require collaboration across disciplines and sectors backed by strong legislative support. Mitigating these conflicts through community-led conservation is the only ray of hope for a future where humans and wildlife co-exist in harmony, creating a safer and healthier ecosystem for generations to come.
