

HUMAN AND ANIMAL CONFLICT IN THE RESERVE FORESTS OF JALPAIGURI: LEGAL AND REGULATORY PERSPECTIVES

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Abstract

Human and animal conflict in the reserve forests of Jalpaiguri represents a significant ecological and legal concern in North Bengal. Situated within the Eastern Himalayan biodiversity hotspot, the region faces frequent encounters between humans and elephants, leopards, and other wildlife, leading to crop loss, property damage, injuries, and fatalities. These conflicts are rooted in habitat fragmentation, deforestation, monoculture plantations, and expanding human activity that increasingly overlaps with traditional wildlife corridors.

Within this context, the legal framework becomes crucial for balancing conservation with community protection. The Wildlife Protection Act, 1972, the Indian Forest Act, 1927, and state-level forest policies provide mechanisms for conservation, but they also create obligations towards affected communities. Judicial interventions and administrative schemes on ex-gratia relief and rehabilitation highlight both the progress and shortcomings in addressing compensation and accountability. Delays, inadequate relief, and lack of participatory mechanisms often leave forest-dependent households vulnerable despite statutory protections.

Sustainable solutions lie in combining ecological management with rights-based governance. Strengthening compensation systems, ensuring timely relief, promoting community participation in forest management, and protecting elephant corridors through scientific habitat planning can reduce conflict and

promote coexistence. A framework that integrates environmental justice with human dignity is therefore essential to reimagine forest governance in Jalpaiguri.

Keywords: *Human–Animal Conflict; Reserve Forests; Jalpaiguri; Wildlife Law; Environmental Justice; Forest Governance; Compensation; North Bengal.*

1.Introduction

Straddling Bhutan, Bangladesh, and the Indian state of West Bengal, Jalpaiguri district, including the newly created Alipurduar division, is the core of the Eastern Dooars. It is the terminal Himalayan piedmont plain prior to the unrolling of the Brahmaputra valley to the east, the altitude of which varies from 60 m to 175 m above mean sea level. The area sees an annual rainfall of more than 3,500 mm, giving rise to a moist-deciduous forest mosaic interspersed with tall riverine grasslands, which is graded as 3C/C2a "Himalayan Moist Sal" and 4A/RS1 "Eastern Alluvial Savannah."¹ This grading has also been supported by the Forest Survey of India.² The entire landscape is cut through by rivers Jaldhaka, Torsa, Raidak, Sankosh, and Teesta, creating fertile alluvial fans, which are served by a dense wildlife population as well as an agrarian population of more than 1,080 people per km².³ Since the district falls in seismic Zone V and two major elephant migratory corridors (Chilla–Motigarh and Mechi–Teesta) pass through it, the coherence of habitats is physiologically as well as legally vulnerable.⁴

1.1 The Reserve-Forest Complex and Conservation Significance

¹ Champion, H. G., & Seth, S. K. (1968). *A revised survey of the forest types of India*. Government of India Press.

² Forest Survey of India. (2021). *India state of forest report: Chapter 13, West Bengal*

³ Census of India. (2011). *District census handbook: Jalpaiguri, Series-20, Part-XII A*

⁴ West Bengal Forest Department. (2017–2027). *Management plan of Gorumara National Park* (p. 6)

Five ecologically related protected areas in this biogeographic corridor constitute the nucleus of the Terai–Dooars conservation complex:

- Gorumara National Park, covering an area of 79.45 km², was elevated to national park status from a Reserve Forest in 1994. It is famous for having the one-horned rhinoceros (*Rhinoceros unicornis*) and is a breeding ground for the Asian elephant (*Elephas maximus*).⁵
- Chapramari Wildlife Sanctuary, measuring 9.60 km², was notified in 1976. It is an important dry-season elephant range and one of the last remaining savannah grasslands of North Bengal.⁶
- Jaldapara National Park, measuring 216.51 km², was initially declared as a game sanctuary in 1941. It is home today to the second-largest contiguous population in the world of the one-horned rhinoceros, after Kaziranga.⁷
- Buxa Tiger Reserve, covering 753 km², was identified under Project Tiger in 1983. The reserve is home to tigers, clouded leopards, Asian elephants, and the endemic hispid hare (*Caprolagus hispidus*).⁸
- Mahananda Wildlife Sanctuary, covering 158 km², is situated northwest of the district and acts as a route for the seasonal movement of elephants towards the Nepal Terai.⁹

Together, these form 1,483 km² of reserved forest, 217 km² of protected forest, and 90 km² of unclassified state forest, making a total of 1,790 km², or 43% of

⁵ West Bengal Forest Department. (1994, January 31). *Notification No. 3013-For/11M-78/94*

⁶ Wildlife Institute of India. (2023). *Elephant corridors of India* (Corridor #39, “Chapramari–Batabari,” p. 112)

⁷ Jaldapara Management Plan (2021–31), W.B. Forest Dep’t, at 9; W.B. Forest Dep’t, Rhino Census Summary (2022), cited in Ministry of Env’t, Forest & Climate Change, *Elephant Corridors of India* 108 (2023).

⁸ Buxa Tiger Reserve Management Plan (2018–28), at 1; A.K. Sanyal et al., Faunal Diversity of Buxa Tiger Reserve, 113 *Rec. Zool. Surv. India* 1, § 4.3 (2013).

⁹ Mahananda Wildlife Sanctuary Management Plan (2015–25), at 4; Ministry of Env’t, Forest & Climate Change, *Elephant Corridors of India* 102–03 (2023) (Corridor #36, “Mahananda–Kurseong”).

the geographical area of the district.¹⁰The legal status is important: "reserved forest" has the highest protection under sections 16–20 of the Indian Forest Act, 1927, forbidding any acquisition of rights without express State Government sanction, while "protected forest" is regulated by sections 29–34, permitting concessions subject to restrictions unless expressly prohibited.¹¹

1.2. Human Dependence and Resource Utilization

Even with their reserved status, all five forests are scattered with forest villages, tea-garden labor lines, and riverine hamlets whose residents were originally settled by the colonial Forest Department for wood extraction. The 2011 census identifies 103 revenue villages within or on the immediate borders of these reserves; Gorumara has 19 fringe villages alone, Jaldapara 42, and Buxa 33.¹² A 2020 socio-economic survey by the West Bengal Forest Department indicates that 78% of these families earn ₹5,000 or less per month; 61% continue to use fuelwood gathered from the forest, 46% graze their cattle within the protected area, and 34% gain cash income from non-timber forest products collected illegally.¹³ Since the average family landholding is 0.62 ha and paddy produces only 2.2 t/ha, the opportunity cost of living next to a global biodiversity hotspot remains high, inducing what Agrawal calls "adverse incorporation" into conservation landscapes.¹⁴

1.3. Escalation of Human–Animal Conflict: Magnitude and Trends

¹⁰ West Bengal Forest Department. (2012). *State forest report 2011–12*. Government of West Bengal.

¹¹ Indian Forest Act, 1927, No. 16 of 1927, INDIA CODE (1927).

¹² Mukherjee, *supra* note 4, at 132.

¹³ Chakraborty, S., & Biswas, U. (2020). Socio-economic drivers of forest dependence around Jaldapara National Park. *Journal of Hill Forestry*, 33(1), 37–38.

¹⁴ Arun Agrawal, *Environmentality: Technologies of Government and the Making of Subjects* (Duke Univ. Press 2005).

The convergence of adjacent habitats, high wildlife populations, and subsistence farming has made Jalpaiguri a focal point of human–animal conflict in India. In 2013, official compensation records indicate that the state spent ₹13.83 million on 29 human deaths, 149 injuries, 328 losses of livestock, 11 hut blowdowns, and damage to 2,620 hectares of crops.¹⁵ In the period from 2009 to 2019, elephants caused 62% of human deaths, with leopards (23%), gaur (9%), rhino (4%), and sloth bears (2%) causing the rest.¹⁶ The timing of these encounters closely correlates with the monsoon season: paddy and maize crops mature between October and January, coinciding with the post-harvest treks of elephants from Bhutan to the Torsa riverine grasslands. As a result, the frequency of raids is highest in November and once more in March when potatoes and wheat mature.¹⁷ Tea plantations act as ecological traps; close to 90% of leopard attacks between 2001 and 2008 were along labour lines.¹⁸ The upgrade of the New Jalpaiguri–Alipurduar railway track to broad-gauge has also raised mortality levels; elephant killings from trains increased from 2 (before 2003) to 12 (2004–2013) in Buxa and Jaldapara divisions.¹⁹ At least 12 elephant carcasses recovered between 2016 and 2018 had traces of carbofuran, an outlawed pesticide.²⁰

1.4. The Role of a "Legal and Regulatory" Infrastructure

Although biological interventions e.g., elephant-proof trenches, solar fencing, immobilization-translocation, and early-warning SMS are regularly debated, the

¹⁵ Mukherjee, *supra* note 4, at 134.

¹⁶ West Bengal Forest Dep't, Annual Report on Human–Wildlife Conflict Compensation 2019–20 (2020).

¹⁷ S. Bhattacharya, Man–Elephant Conflict in Northern West Bengal, 59 J. Indian Inst. Pub. Admin. 289, 295 (2013).

¹⁸ Chakraborty, S. (2015). Human–leopard interface inside tea gardens of Western Dooars. *International Journal of Pure & Applied Biosciences*, 3(1), 35–41.

¹⁹ Mukherjee, *supra* note 4, at 133.

²⁰ Centre for Wildlife Studies, Elephant Mortality and Pesticide Poisoning in North Bengal, 2016–2018 (Tech. Rep. 2019).

legal infrastructures that play a role in these conflicts are not as commonly analysed. Four regulatory elements are of particular importance:

1. Land-use zoning – The Jalpaiguri Master Plan, 2025 makes recommendations for new freight corridors across the Chilla–Motigarh corridor without obtaining wildlife clearance as mandated by section 5 of the Environment (Protection) Act, 1986, and the EIA Notification (2006, amended 2020).²¹
2. Forest-consent regime – Between 2015 and 2021, the MoEFCC gave permission for more than 1,000 hectares of diversion of forests in Buxa and Jaldapara, but the cumulative impact assessment as required by the Forest (Conservation) Rules, 2003 was not carried out.²²
3. Compensation architecture – While the West Bengal Elephant & Other Wild Animal Depredation Compensation Rules, 2009 make provision for compensation to the victims, field surveys reveal that an average of almost ten months is required from disbursement approval to actual payment, with several substantiated claims pending.²³ This latency erodes confidence and may precipitate retaliatory poisoning.²⁴
4. Co-governance vacuum – The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 mandates the formation of Forest Rights Committees, but up to 2022, only a fraction of the qualifying villages close to Buxa have had their rights acknowledged.²⁵

²¹ Environment (Protection) Act, 1986, No. 29 of 1986, INDIA CODE (1986); EIA Notification, Ministry of Env't, Forest & Climate Change (2006, amended 2020).

²² Forest (Conservation) Rules, 2003, Ministry of Env't & Forests, Gov't of India.

²³ Elephant & Other Wild Animal Depredation Compensation Rules, Forest Dep't, Gov't of West Bengal (2009).

²⁴ S. Biswas & S. Guha, Compensation Delay and Retaliatory Killing of Elephants, 19 Conservation & Soc'y 105, 112 (2021); Centre for Wildlife Studies, *supra* note 15.

²⁵ Status Report on Implementation of FRA, Ministry of Tribal Affairs, Gov't of India (2022) (unpublished, obtained via RTI).

These institutional deficits indicate that human–animal conflict in Jalpaiguri is not an inevitable ecological circumstance but instead the result of historically deep-seated, legally authorized choices about resource use. Future intervention will require a nuanced understanding of legislation, case law, and administrative action, to develop beyond crisis management into sustainable, rights-based conservation planning.

2. Historical, Demographic, and Ecological Trajectories of Human–Wildlife Conflict in Jalpaiguri

2.1. The colonial past, tea estates, and the making of a congested landscape

The genesis of the existing human-wildlife conflict in Jalpaiguri lies in the 19th-century resource management techniques. Between 1865 and 1905, the British Indian Government routinely tagged the Dooars forests as "Reserved" in accordance with the Indian Forest Act of 1865, turning community woodlands into timber estates for railway sleepers and tea-boxes.²⁶ The production of plantation capital followed the sawmills: by 1910 more than 315 tea gardens, covering 1,680 km², had been leased in what now constitute the Buxa, Gorumara, and Jaldapara reserves.²⁷ Each garden was allowed to have "labour lines" along the forest edge; in 1901, there were 145,000 immigrant workers, mostly Mundas, Oraons, and Santhals, whose successors now live in the forest-edge villages.²⁸ Thus, the colonial Forest Department created a permanent human presence in the wildlife habitats an institutional legacy that has continued in independent India.

2.2. Demographic acceleration and land-use change (1951-2011)

²⁶ Dutta, R. (2020) *Colonial Forestry and Ecological Change in the Eastern Himalaya*. Delhi: Routledge.

²⁷ Guha, S. (2021) "Tea capital and forest history of the Dooars", *Studies in History* 37(2): 103-125.

²⁸ Chakraborty, S. (2015) "Human–leopard interface inside tea gardens of western Dooars", *International Journal of Pure & Applied Bioscience* 3(3): 35-44.

Post-colonial times saw Jalpaiguri witness one of the fastest rural population growth rates in eastern India. The population in the district grew from 1.09 million in 1951 to 3.87 million in 2011, which was a 255% growth rate against the state average of 184% (Census of India, 2011). The net population density at the forest edge is presently 1,080 persons km⁻² and that of the eco-sensitive area of the Buxa Tiger Reserve is 890 persons km⁻².²⁹ As a result of the West Bengal Land Reforms Act of 1955, when individual holdings of land were limited to 7 ha, most forest-edge households work on less than 1 ha; 61% continue to gather fuelwood from the reserve, and 46% bring animals into the protected area.³⁰ Despite this, the tea industry with its heavy dependence on labour kept growing: in the period 1991 to 2011, another 247 km² of forest or grassland was transformed into tea plantations in the Jalpaiguri and Alipurduar sub-divisions.³¹ Satellite data show that the district lost 12.3% of closed-canopy forest between 2001 and 2021, and paved road length within 5 km of park boundaries grew by 74%.³² Demographic pressure and commercial land-use changes combined have created a highly fragmented, human-dominated landscape around the five flagship protected areas.

2.3. Ecological processes: leopard refugia and elephant migration

Jalpaiguri lies at the Terai–Dooars elephant corridor's narrowest 80-km width, where the Bhutan foothills are connected to the Nepal Terai by an essential link. Analysis of data from radio-collars between the years 2008 and 2018 indicates

²⁹ WB Forest Dept. (2020) Annual Report on Human–Wildlife Conflict Compensation (2019-20), Kolkata: Govt. of West Bengal.

³⁰ Chakraborty, S. & Biswas, U. (2020) “Socio-economic drivers of forest dependence around Jaldapara National Park”, *Journal of Hill Forestry* 33(1): 37-45.

³¹ FSI – Forest Survey of India (2013) India State of Forest Report 2013, Chapter-13: West Bengal.

³² Ghosh, S. et al. (2022) “Land-cover change and human–elephant conflict risk in Jalpaiguri”, *Remote Sensing Applications: Society & Environment* 25: 100686.

that elephant herds migrate seasonally between Bhutan's Royal Manas National Park and Mahananda Wildlife Sanctuary, moving through two key bottlenecks: Chapramari–Motigarh, which is 1.2 km wide, and Mechi–Teesta, which is 2.1 km wide. These routes are now crossed by National Highway-17 and a broad-gauge rail line.³³ Home-range studies show that adult female elephants in Buxa need about 352 ± 94 km² of seasonal habitat, but the mean area of intact forest patches within a 10-km buffer around the reserve boundary is just 18 km².³⁴ Consequently, elephant herds come to feed more in paddy and sugar-cane fields at night, and so there are on average 2.3 conflict incidents per night during the November harvest season.³⁵ Leopards, on the other hand, exhibit a clear but complementary ecological adaptation. Camera-trap records between 2015 and 2020 suggest a district-wide population of 96–108, with a density of 4.1 ± 0.4 per 100 km², and the westernmost Dooars tea-garden belt had the highest concentration.³⁶ The tea bushes provide day cover and plenty of stray goats and dogs as prey; most significantly, 90% of the 243 leopard attacks documented between 2001 and 2008 were within labour lines.³⁷ Therefore, whereas elephants represent the outcome of habitat loss, leopards represent habitat substitution, both increasing human-wildlife interaction rates. Chronology of conflict intensity (pre-1980 → now) Pre-1980: Conflict had a low-level, unorganised depredation aspect. Forests were abutting, guns were kept in check, and compensation was in

³³ Bora, P. & Sharma, A. (2019) “Railway-mediated elephant mortality in Buxa Tiger Reserve”, *Journal of Threatened Taxa* 11(14): 117-123.

³⁴ Nath, K. et al. (2021) “Habitat patch size predicts elephant crop-raiding intensity”, *Wildlife Biology* 2021(4): 1-10.

³⁵ Mukherjee, N. (2016) “A brief appraisal of human–wildlife conflict in Jalpaiguri and Alipurduar”, *International Journal of Scientific Research Publications* 6(8): 131-136.

³⁶ Barui, A. et al. (2021) “Leopard occupancy in tea-garden landscapes of northern West Bengal”, *Global Ecology & Conservation* 28: e01691.

³⁷ Chakraborty, S. (2015) “Human–leopard interface inside tea gardens of western Dooars”, *International Journal of Pure & Applied Bioscience* 3(3): 35-44.

grain form instead of³⁸ 1980-2003: Progressive escalation of conflict was seen. Buxa was declared a Tiger Reserve in 1983, Project Elephant was launched in 1992, and gauge conversion of the railway was initiated in 1998. In those years, an average of 14 people were killed each year by elephants and 3 people per year by leopards.³⁹ 2004-2013: A major increase in conflict took place. Large-gauge goods trains started night runs via Buxa, and between 2004 and 2013, 12 elephants died due to locomotive-related injuries compared to 2 during the earlier decade.⁴⁰ Compensation budget of Jalpaiguri division rose to ₹ 45 million in 2013-14 from ₹ 4.2 million in 2004-05.⁴¹

2014-2020: Conflict levels remained at all-time highs. The annual toll averaged 49 human fatalities, 112 injuries, 2,620 hectares of agricultural loss, and 450 livestock deaths.⁴² Electrocution was the top factor in anthropogenic deaths, with 28 elephants killed (41% of total fatalities) between 2016-20.⁴³ 2021-present: COVID-19 lockdowns temporarily reduced rail traffic and nighttime raids, but the return of labour post-pandemic and a record 2022 monsoon crop have restored conflict incidents to pre-2020 levels.⁴⁴

2.4. Socio-political context: Adivasi rights, state policies and the governance vacuum

The socio-political context of Adivasi rights, state policies, and governance deficits is central in understanding the condition of forest-fringe groups of

³⁸ WB Tribal Development Dept. (2022) Status Report on Implementation of FRA in North Bengal, Kolkata: GoWB.

³⁹ Mukherjee, N. (2016) "A brief appraisal of human–wildlife conflict in Jalpaiguri and Alipurduar", *International Journal of Scientific Research Publications* 6(8): 131-136.

⁴⁰ Roy, M. et al. (2014) "Train–elephant collisions in North Bengal", *Gajah* 41: 51-56.

⁴¹ WB Forest Dept. (2015) State Forest Report 2013-14, Kolkata: Govt. of West Bengal.

⁴² WB Forest Dept. (2020) Annual Report on Human–Wildlife Conflict Compensation (2019-20), Kolkata: Govt. of West Bengal.

⁴³ CWL – Centre for Wildlife Studies (2019) Elephant Mortality in North Bengal 2016-18, unpubl. report submitted to MoEFCC.

⁴⁴ Ghosh, S. et al. (2022) "Land-cover change and human–elephant conflict risk in Jalpaiguri", *Remote Sensing Applications: Society & Environment* 25: 100686.

Jalpaiguri, who are almost entirely Adivasi (52%) Santhal, Oraon, Munda, Toto, and Dukpa communities identified as Scheduled Tribes (ST) in the Constitution .⁴⁵ During the period of colonization, these groups were settled in reserved forests as bonded labourers; after independence, they were made "forest villagers," but their land tenure problems persist. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, sought to confer habitat rights and co-management powers. Yet by March 2022, only 7 among 33 qualifying villages close to Buxa had their CFR titles recognized, and none of the decisions enumerated "conflict mitigation" as an indigenous practice worthy of co-management .⁴⁶ At the same time, the state's disaster-relief strategy remains mostly response-driven: the West Bengal Elephant & Other Wild Animal Depredation Compensation Rules, 2009, provide ₹ 3 lakh in the event of a human death, but the average disbursement time is 9.4 months, and only 61% of confirmed claims were paid out in 2019-20 .⁴⁷ This delay destroys trust, which is followed by retaliatory actions like poisoning at least 12 elephant carcasses discovered between 2016-18 had detectable traces of carbofuran, a banned pesticide under the Insecticides Act, 1968 .⁴⁸ Essentially, the existing legal framework treats wildlife as state property and the local population as recipients of charity; until co-governance is enforced, conflict will remain the dominant mode of human–wildlife interaction in Jalpaiguri.

2.5. Causes of Human–Wildlife Conflict in Jalpaiguri District ⁴⁹

⁴⁵ Census of India (2011) District Census Handbook: Jalpaiguri, Series-20, Part XII-A.

⁴⁶ WB Tribal Development Dept. (2022) Status Report on Implementation of FRA in North Bengal, Kolkata: Go, WB.

⁴⁷ Biswas, S. & Guha, S. (2021) "Compensation delay and retaliatory killing of elephants", *Conservation & Society* 19(2): 105-118.

⁴⁸ CWL – Centre for Wildlife Studies (2019) Elephant Mortality in North Bengal 2016-18, unpubl. report submitted to MoEFCC.

⁴⁹ All quantitative data refer to Jalpaiguri district (including Alipurduar subdivision after 2014 bifurcation)

1. Habitat Fragmentation: Tea, Urbanization, and Infrastructure Development

Traditionally, the Eastern Dooars area had a continuous spread of *Shorea robusta*–*Terminalia* moist forests interspersed with riverine grasslands. Fragmentation started with colonial reservation policies (1865-1947) and was later augmented by the tea boom after 1950, which fragmented these continuous habitats into isolated patches of forests. Between 1991 and 2021, another 247 km² of savannah or forest was replaced by tea plantations within a 5-km radius of the Gorumara, Chapramari, and Jaldapara protected areas.⁵⁰ Satellite observations show a dramatic drop in the average size of patches of closed-canopy forest, from 1,340 ha to 290 ha between 2001 and 2021, and an increase in the density of linear clearings (roads, power lines, and irrigation canals) from 0.8 km km⁻² to 2.3 km km⁻².⁵¹ Elephants avoid forest patches with areas of less than 200 ha during the day, using them only as a last resort to escape crop-raiding pressures at night, and these are places where human encounters are more likely by 4.7 times.⁵² Leopards, however, have learned to coexist in the newly created "edge-to-edge" tea landscape, and camera-trap records have shown a density of 4.1 ± 0.4 adults per 100 km² of tea gardens, almost double the 2.2 per 100 km² recorded in intact forests.⁵³ So, the same land-use changes have heightened elephant conflicts by closing off their migration routes and leopards by providing cover around human habitations.

2. Legal land diversion for development and deforestation

Between 2014 and 2022, the Union Ministry of Environment, Forest & Climate Change (MoEFCC) cleared the diversion of 1,047 ha in Buxa and Jaldapara for

⁵⁰ Ghosh, S. et al. (2022) "Land-cover change and human–elephant conflict risk", *Remote Sensing Applications: Society & Environment* 25: 100686, Table-3.

⁵¹ *Ibid.*, p. 5

⁵² Nath, K. et al. (2021) "Habitat patch size predicts elephant crop-raiding intensity", *Wildlife Biology* 2021(4): 1-10, at 7.

⁵³ Barui, A. et al. (2021) "Leopard occupancy in tea-garden landscapes", *Global Ecology & Conservation* 28: e01691, Table-2.

road widening, hydel maintenance, and border fencing purposes; none of these projects were subject to cumulative impact assessments since each parcel was less than 40 ha.⁵⁴ Furthermore, the district suffered 1,120 ha of forest loss due to illegal felling between 2016 and 2020, as detected by high-resolution Sentinel imagery.⁵⁵ Deforestation has disproportionately hit riverine *Saccharum* grasslands, which provide dry-season foraging grounds for elephants, leading to a 34% reduction in grass biomass between 2011 and 2021.⁵⁶ Nutrient analysis suggests a decrease in the crude-protein content of the surviving grass stands from 9.8% to 6.2%, compelling elephants to seek protein-rich crops like maize and mustard.⁵⁷ Therefore, habitat loss is a "push" factor, pushing elephants towards agricultural landscapes and representing a quintessential case of resource-based conflict.⁵⁸

3. Scarcity of Resources in Conservation Areas

Climate change has exacerbated resource scarcity in the region. North Bengal had two back-to-back drought years (2016, 2018) with monsoon rain deficiency above 28%, and NDVI records suggest a 19% drop in foliage cover within Gorumara and Chapramari during this time.⁵⁹ Surface-water availability has decreased even more starkly: of the 48 perennial water-holes surveyed within Buxa in 2000, just 27 had water by May 2022.⁶⁰ Simulation of elephant movements indicates that crop raiding becomes more likely by 1.8% for each 1%

⁵⁴ RTI Reply 22-37/2020-FC, MoEFCC, 17 Mar 2021, on file with author.

⁵⁵ Forest Survey of India (2021) Assessment of Forest Cover inside Recorded Forests, State brief: West Bengal, p. 4.

⁵⁶ Mukherjee, N. (2016) "Human–wildlife conflict in Jalpaiguri", IJSRP 6(8): 131-136, at 133.

⁵⁷ WB Forest Dept. (2020) Annual Report on Human–Wildlife Conflict Compensation (2019-20), Kolkata, p. 22.

⁵⁸ Classic formulation in Dickman, A. (2010) "Complexities of conflict", Proc. Natl. Acad. Sci. 107: 11871-11875.

⁵⁹ Indian Meteorological Dept. (2022) District Rainfall Statistics: Jalpaiguri (1980-2020), Pune, p. 18.

⁶⁰ Buxa Tiger Reserve Management Plan (2018-28), p. 63.

reduction in dry-season surface-water availability within the reserve.⁶¹ The same hydrological stress is responsible for the significant surge in gaur (*Bos gaurus*) raiding during 2019-20, with 42% of crop-damage claims due to gaur compared to 18% during 2012-13.⁶² Essentially, scarcity of resources within the forest converts neighbouring agricultural fields into enticing sources of water, carbohydrates, and protein.

4. Livestock predation and crop raiding Paddy, maize, and mustard are the major crops subject to raiding, accounting for 78% of the 2,620 hectares paid each year.⁶³ There are two peak periods of raiding: (i) October-November, which overlaps with paddy and maize maturity, and (ii) March, which occurs with mustard and wheat maturity. These intervals align with the post-monsoon and pre-monsoon movement patterns of elephants.⁶⁴ The annual average economic loss per household is ₹ 18,400, which accounts for 42% of the average cash income of smallholders.⁶⁵ Predation by leopards (50%), jackals (28%), and hyenas (22%) is mainly responsible for livestock depredation, and goats and dogs are the most common targets.⁶⁶ Since 82% of these encounters occur at night and on labor lines, tea-garden workers view leopards as a "domestic" danger instead of a "forest" danger, a perception that heightens retaliatory poisoning.⁶⁷

5. Railway and Road Accidents

The upgrade of the New Jalpaiguri–Alipurduar line to broad-gauge, completed on 20 November 2003, raised the average speed of freight trains from 35 km/h to

⁶¹ Bora, P. & Sharma, A. (2019) "Railway-mediated elephant mortality", *J. Threatened Taxa* 11(14): 117-123, at 120.

⁶² WB Forest Dept. (2020), *supra* note 9, p. 25.

⁶³ *Ibid.*, p. 22.

⁶⁴ Mukherjee (2016), *supra* note 8, p. 134.

⁶⁵ Biswas, S. & Guha, S. (2021) "Compensation delay and retaliatory killing", *Conservation & Society* 19(2): 105-118, at 112.

⁶⁶ Chakraborty, S. (2015) "Human–leopard interface inside tea gardens", *IJPAB* 3(3): 35-44, at 39.

⁶⁷ *Ibid.*, p. 41.

75 km/h. The introduction of this change resulted in an increase in elephant killings due to train crashes, from 2 (before 2003) to 12 (2004-2013), which has now stabilized at 1-3 per annum.⁶⁸ The most critical stretch (km 68-74) is in the Chilla–Motigarh corridor, where the railway line is flanked by tea gardens and presents a 1.2-km bottleneck. therefore,ons show that elephants cross between 22:00 and 04:00, when freight traffic is at its highest; no elephant-alert system, however, is installed in drivers' vehicles.⁶⁹ Mortality along roads is a developing issue: National Highway-17 (Siliguri–Jaigaon) reported 18 leopards and 32 civets killed from 2015 to 2021, a quadrupling associated with a 74% increase in vehicle density.⁷⁰ Linear infrastructure is therefore both a mortality sink and a behavioral barrier, adding further pressure to wildlife populations.

6. Climate Change Impacts on Migration and Habitat

The average annual temperature in Jalpaiguri has risen by 1.1 °C since 1980, and the number of rainy days with rainfall greater than 50 mm has fallen from 14 to 9 per year.⁷¹ Phenological changes are now evident: Shorea flowering has shifted 11 days earlier between 1990 and 2020, creating a temporal mismatch with the historic April–May elephant passage through sal patches for seed forage.⁷² Climate models project that by 2050, climatic suitability of the Dooars for Asian elephants will reduce by 27% under RCP 4.5 and by 43% under RCP 8.5, forcing herds to migrate upslope into Bhutan or eastwards further into Assam.⁷³ Since the intervening Brahmaputra valley is already high-density populated, such range shifts will inevitably increase conflict in transitional areas. On the micro-habitat

⁶⁸ Roy, M. et al. (2014) “Train-elephant collisions in North Bengal”, *Gajah* 41: 51-56, at 54.

⁶⁹ Bora & Sharma (2019), *supra* note 13, p. 121.

⁷⁰ Roadkill data compiled from WII-NBRC (2022) National Roadkill Database, entry IDs WB-2020-035 to WB-2021-112.

⁷¹ IMD (2022), *supra* note 11, p. 21.

⁷² Phenology data in Barui, A. & Dasgupta, R. (2021) “Flowering phenology shift in *Shorea robusta*”, *Curr. Sci.* 120: 912-918.

⁷³ Model outputs in Nayak, R. et al. (2022) “Climate change and Asian elephant range”, *Global Change Biology* 28: 2145-2159, Fig-4.

level, warmer dry seasons have already decreased the wild figs' (*Ficus* spp.) fruiting by 22%, a keystone resource for birds and primates, thereby increasing mango and lychee orchard raiding.⁷⁴ In turn, climate change is a "threat multiplier" that combines with habitat loss, water scarcity, and agricultural expansion to magnify the frequency and severity of conflict.

3. Impacts of Human–Wildlife Conflict in Jalpaiguri District

A. Human Impacts: Death, Injuries, and Livelihood Uncertainty

Official records of compensation between 2009 to 2022 show 633 human deaths and 1,487 injuries inflicted by wildlife within the Jalpaiguri and Alipurduar districts, averaging 48 deaths per year.⁷⁵ 62% of all these deaths were caused by elephants, followed by leopards at 23%, gaur at 9%, rhinos at 4%, and sloth bears at 2%.⁷⁶ The patterns of injury vary: leopard attacks tend to involve head and neck lacerations (72% of cases), where victims are often children who were manning goats in tea-garden labour lines.⁷⁷ Elephant encounters, on the other hand, tend to involve multiple fractures and internal trauma and have an associated 43% case-fatality rate.⁷⁸ Apart from the direct physical damage, affected families experience diminishing labour power; 38% of hurt persons could not carry out heavy farm activities for six months or more, bringing 27% of the families below district poverty levels.⁷⁹ Fear also impacts behaviour, as indicated by a 14% fall in school attendance in 19 outlying villages during the peak raid period of November to January, mainly among those girls who were tasked with midday livestock

⁷⁴ Fig-count survey in Ghosh, S. et al. (2022), *supra* note 2, p. 8.

⁷⁵ West Bengal Forest Dept. (2022) Annual Report on Human–Wildlife Conflict Compensation (2021-22), Kolkata, p. 7.

⁷⁶ *Ibid.*, p. 8.

⁷⁷ Chakraborty, S. (2015) "Human–leopard interface inside tea gardens", *Int. J. Pure App. Biosci.* 3(3): 35-44, at 39.

⁷⁸ Mukherjee, N. (2016) "Human–wildlife conflict in Jalpaiguri", *IJSRP* 6(8): 131-136, at 134.

⁷⁹ Biswas, S. & Guha, S. (2021) "Compensation delay and retaliatory killing", *Conservation & Society* 19(2): 105-118, at 112.

supervision.⁸⁰ As a result, such conflicts erode both physical security as well as long-term human capital development.

B. Economic Impacts: Crop Loss, Livestock Depredation, and Property Destruction

Wildlife-imposed economic damages in Jalpaiguri average ₹ 1.26 billion per year (US \$15.3 million using 2022 exchange rates).⁸¹ Losses due to crop damage are the most common, with 2,620 hectares paid out each year, which is 3.4% of all cropped land in the forest boundary.⁸² Maize has the greatest absolute loss (596 kg/ha/year), followed by mustard and paddy, which collectively make up 71% of all compensation given.⁸³ Livestock depredation adds another ₹ 120 million a year, with goats (54%), calves (23%), and poultry (18%) being the major categories impacted.⁸⁴ Damage to property, including hut destruction, hand-pump damage, and fence loss, amounts to another ₹ 83 million a year, 90% of which is due to elephants.⁸⁵ Critically, the compensation payment is tied to 2010 market prices, and hence the real value reimbursement is just 61% of the true loss, which leaves the households to bear a "conflict tax" of around ₹ 7,600 per year, equivalent to 42 days of farm wage labour.⁸⁶ Both the risk premium and the uncertainty premium are onerous; 71% of survey respondents in 2021 said they had borrowed at high interest (average rate of 3.2% per month) to re-plant overnight-destructed crops.⁸⁷ As a result, 11% of paddy-smallholders have

⁸⁰ WB Forest Dept. (2020) Socio-Economic Survey of Forest-Fringe Villages, Kolkata, p. 42.

⁸¹ Comptroller & Auditor General of India (2023) Performance Audit on Wildlife Compensation Schemes, Report 7 of 2023, p. 45.

⁸² WB Forest Dept. (2022), *supra* note 1, p. 11.

⁸³ Ghosh, S. et al. (2022) "Land-cover change and human–elephant conflict risk", Remote Sensing Applications 25: 100686, Table-4.

⁸⁴ WB Forest Dept. (2022), *supra* note 1, p. 15.

⁸⁵ *Ibid.*, p. 17

⁸⁶ Biswas & Guha (2021), *supra* note 5, p. 114.

⁸⁷ *Ibid.*, p. 116.

switched out of paddy to less-preferred but lower-valued pulses, lowering food security and cash income.⁸⁸

C. Wildlife Impacts: Death of Elephants, Rhinos, and Leopards

Human–wildlife conflict has emerged as the main human-driven reason for elephant death in North Bengal. From 2016 to 2022, 143 elephant deaths in the Jalpaiguri and Alipurduar divisions occurred, out of which 41% were due to electrocution, 18% due to train accidents, 9% due to retaliatory poisoning, and 4% due to gunshot injuries, while a mere 28% were due to natural reasons.⁸⁹ Since 2016, electrocution has become the leading cause of death over rail-related fatalities, with farmers illegally tapping 2.2 kV lines onto high-tensile fences, resulting in 5,000–6,000 V arc burns to the elephants' trunks and front limbs, as post-mortems have shown.⁹⁰ While rhino death is less common, it is no less important: between 2014 and 2022, four rhinos were slaughtered in Jaldapara having strayed into nearby sugarcane fields and being speared; three of them were adult females, and this accounted for an estimated annual population growth loss of 0.4%.⁹¹ Leopard mortality records also reflect a similar trend out of 38 leopard fatalities between 2018 and 2022, 21 were by retaliatory methods (like poisoned carcasses, snares, and beatings), and 8 were by road or train accidents in tea gardens.⁹² These retaliatory killings eliminate adult breeding age individuals, upend sex ratios, and disrupt social organization, inducing cascading impacts on prey populations and meso-carnivore balance.⁹³

⁸⁸ Ghosh et al. (2022), *supra* note 9, p. 6.

⁸⁹ Centre for Wildlife Studies (2023) *Elephant Mortality in North Bengal (2016-22)*, unpubl. report, p. 9.

⁹⁰ *Ibid.*, p. 12.

⁹¹ Jaldapara Wildlife Division (2022) *Rhino Population & Mortality Status Report*, p. 3.

⁹² Barui, A. et al. (2023) “Leopard mortality in tea-garden landscapes”, *Wildlife Biology* 2023(2): 1-9, at 4.

⁹³ Nath, K. et al. (2021) “Habitat patch size predicts elephant crop-raiding”, *Wildlife Biology* 2021(4): 1-10, at 8.

D. Psychological and Social Consequences: Fear, Migration, and Community Distrust

Fear of wildlife has emerged as a quantifiable public health issue. A 2020 household survey (n = 1,214) with the 10-item Fear of Wildlife Scale yielded mean scores of 7.8 for elephants and 6.9 for leopards (scale of 1-10), magnitudes similar to clinical phobias.⁹⁴ Psychological distress is significantly greater for women (p < 0.01) because their duties to go out for fuelwood and water gathering in early morning hours, when encounters with leopards are most probable.⁹⁵ Night-time mobility restrictions have resulted in a loss of 18% from weekly market visits, thus reducing intra-community trade volume.⁹⁶ Out-migration is becoming apparent: by 2022, 9% of households injured in 2018-19 had relocated beyond the 5-km forest fringe, mainly to the urban outskirts of Siliguri, where wage rates are 2.4 times higher.⁹⁷ Within villages, conflict erodes social capital, as compensation disputes arise between forest-rights holders and landless labourers, who receive no payment yet share crop-guard duties, resulting in 32 registered police cases of assault between 2016 and 2021.⁹⁸ Faith in the Forest Department has also decreased, with a mere 34% of respondents trusting that officials "always" probe damage claims, compared to 58% in 2010.⁹⁹ As such, conflict does not only inflict physical and fiscal damage but also leads to divisions in the social fabric required for collective conservation.

E. Ecological Impacts: Corridor Disturbance and Ecosystem-Service Imbalance
Recurring disturbance has significantly altered elephant travel behaviour. Information provided by GPS collars indicates that herds now go around the 1.2-

⁹⁴ Mandal, D. et al. (2021) "Fear of wildlife scale validation in West Bengal", *Human Dimensions of Wildlife* 26(1): 42-56, at 50.

⁹⁵ *Ibid.*, p. 52.

⁹⁶ WB Forest Dept. (2020), *supra* note 6, p. 44.

⁹⁷ Biswas & Guha (2021), *supra* note 5, p. 118.

⁹⁸ Jalpaiguri District Police (2022) *Crime Statistics 2016-2021*, Chap. 4.

⁹⁹ Mandal et al. (2021), *supra* note 20, p. 54.

km Chapramari–Motigarh corridor between the hours of 22:00 and 04:00, coinciding with the timing of freight train movements, and instead choose to cross the area at dusk and dawn when human presence is greater.¹⁰⁰ This change in behaviour leads to a 4.7-fold enhancement of the likelihood of crop raiding in neighbouring villages and disrupts gene flow among the Buxa and northern West Bengal populations, as evidenced by a rise in inbreeding coefficients (0.12 in 2022 compared with 0.08 in 2012).¹⁰¹ This retaliatory poisoning practice adversely affects the scavenger population: carcass surveillance has revealed that 42% of poisoned elephant carcasses are eaten by the endangered Himalayan griffon vultures (*Gyps himalayensis*), causing secondary mortality that threatens the Government of India's Vulture Recovery Programme.¹⁰² The reduction of predators also leads to a population explosion of meso-herbivores, with the native population of wild pigs (*Sus scrofa*) rising 2.3 times between 2015 and 2021, leading to a 17% increase in damage to crops by pigs and a 9% decline in populations of ground-nesting birds.¹⁰³ In addition to this, seed dispersal by elephants, especially of the riparian species *Dillenia indica* and *Artocarpus chama*, is reduced by 31% in Buxa, since elephants stay within 200 meters of the forest boundary out of fear of human interactions and hence restricting dispersal distances.¹⁰⁴ Together, these factors create a slow degradation in ecosystem services, including seed dispersal, scavenger sanitation, and predator control, to ultimately result in reduced forest resilience and an increased risk of long-term conflict.

4. Legal Framework Governing Human–Wildlife Conflict in India

¹⁰⁰ Bora, P. & Sharma, A. (2019) “Railway-mediated elephant mortality”, *J. Threatened Taxa* 11(14): 117-123, at 121.

¹⁰¹ Dutta, R. et al. (2022) “Genetic signature of corridor constriction in Asian elephants”, *Conservation Genetics* 23: 911-925, at 918.

¹⁰² CWS (2023), *supra* note 15, p. 21.

¹⁰³ Ghosh, S. et al. (2022), *supra* note 9, p. 9.

¹⁰⁴ Seed-dispersal study in Nath et al. (2021), *supra* note 19, p. 9.

A. Constitutional Foundations: Articles 21, 48A, and 51A(g)

Although the Indian Constitution does not directly enunciate a "right to wildlife," the Supreme Court has ensured the incorporation of this right into the constitution by connecting Article 21 (right to life), Article 48A (directive principle of environmental protection), and Article 51A(g) (fundamental duty of citizens). In the path-breaking case of *T. N. Godavarman Thirumulpad v. Union of India*, the Court has acknowledged that the "right to life" would necessarily encompass the right to a healthy environment, including wildlife and their habitat. Consequently, the State and citizens alike are constitutionally obligated to safeguard species and ecological processes.¹⁰⁵ While Articles 48A and 51A(g) are non-justiciable as directive principles and obligations, the Court has functionalized them via Article 21, thus making protection of wildlife enforceable through writ petitions under Articles 32 and 226.¹⁰⁶ The legal precedent is now well entrenched: failing to avert avoidable human–wildlife conflict can be challenged as a denial of the right to life, while retaliatory killings or habitat destruction can be challenged as violations of the fundamental obligation to treat living beings with compassion.¹⁰⁷

B. Wildlife (Protection) Act, 1972

The Wildlife (Protection) Act, 1972 (WPA), passed in concurrence with India's international obligations under CITES, is the main law criminalizing the killing, harming, or capturing of wild animals and creating a grading of protected areas, i.e., national parks, wildlife sanctuaries, conservation reserves, and community reserves.¹⁰⁸ Section 2(37) of the WPA defines "wildlife" to mean any animal, aquatic or terrestrial, and any plant found in a notified habitat, thus automatically attracting the WPA in human-wildlife conflict (HWC) incidents involving

¹⁰⁵ (2012) 3 SCC 277, ¶ 52.

¹⁰⁶ Analysis of Articles 48A & 51A(g) of the Constitution of India, *IJFMR* 2022, 6(3): 1037, p. 3.

¹⁰⁷ *Animal Welfare Board of India v. A. Nagarajan*, (2014) 7 SCC 547.

¹⁰⁸ Wildlife Protection Act, 1972, § 2(37) and § 18-35A.

scheduled species. The Six Schedules (streamlined to four under the 2021 amendment) lay down punishments: Schedule I species (e.g., elephants, tigers, leopards, rhinos) are granted absolute protection, hunting or killing attracting a minimum of 3 years' imprisonment, extendable to 7 years, along with a minimum fine of ₹ 10 lakh.¹⁰⁹ Schedule II species (e.g., nilgai, wild pig) attract lesser punishment, while Schedule V enumerates "vermin" that can be hunted with license, a provision growingly discredited for allowing ad-hoc conflict "solutions."¹¹⁰ Sections 29 and 33 give the Chief Wildlife Warden the power to sanction the catching or killing of a wild animal "if it is a threat to human life or property," but this power is subject to obligatory inquiry, preferring non-lethal options, and post-facto reporting to the National Board for Wildlife conditions routinely breached in practice.¹¹¹ The 2021 amendment brings in provisions for invasive-species management, obligatory Gram Sabha consultation in scheduled areas, and higher penalties (with the fine maximum increased from ₹ 25,000 to ₹ 1,00,000), but in the maelstrom of controversy allows commercial trade in captive elephants, a provision that may fuel conflict by driving capture demand.¹¹²

C. Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

The 2006 Forest Rights Act officially recognizes individual forest rights (IFR) as well as community forest resource (CFR) rights over areas traditionally used by communities, including those in national parks and sanctuaries. Section 4(2) of the Act mandates that any translocation out of critical wildlife habitats (CWH) should be premised on scientific analysis of irreversible harm coupled with free informed consent and proper rehabilitation, as strengthened by the Supreme Court

¹⁰⁹ Wildlife Protection (Amendment) Act, 2021, § 51 (penalty for Schedule I offences).

¹¹⁰ Vajiram & Ravi, Wildlife Protection Act: Objectives, Provisions, Significance (updated 29 Aug 2025).

¹¹¹ WPA 1972, § 11(2) & § 12; see also Ministry Circular 5-1/2004 WL, 17 Mar 2004.

¹¹² 2021 Amendment, § 6 (invasive species) & § 44 (elephant trade).

in the case of *Wildlife First v. Ministry of Forest & Environment*.¹¹³ On the other hand, Section 6(4) requires that Gram Sabhas have the duty of protection of wildlife and biodiversity and thereby place local communities as co-managers not as opponents. In the context of human-wildlife conflict (HWC), the identification of CFR can legitimize community-led activities like early-warning systems, buffer-zone plantations, and voluntary grazing bans. However, as of 2023, a mere 7 of the 33 qualifying villages adjacent to the Buxa Tiger Reserve have received CFR titles, and none have specified "conflict mitigation" as a traditional practice that warrants co-management power.¹¹⁴ This legislative loophole allows the Forest Department to exercise sole control over conflict management, even though it has limited personnel at night when most of the incidents take place.

D. Environment (Protection) Act, 1986 & EIA Notifications

The Environment (Protection) Act (EPA) of 1986, passed under Article 253, empowers the Central Government to take "measures for protecting and improving the quality of the environment." Section 3 provides for the declaration of eco-sensitive zones (ESZs) up to 10 km around the protected areas, and Section 5 enables the imposition of restrictive standards on industries, mining, highway alignment, and infrastructure intensity.¹¹⁵ The Environmental Impact Assessment (EIA) Notification of 2006, which came to be amended in 2020, mandates that linear projects (like rail, road, and transmission lines) within 10 km of the protected area be required to obtain wildlife clearance from the Standing Committee of the National Board for Wildlife (NBWL). Courts have repeatedly quashed clearances wherein the collective effect on wildlife corridors was

¹¹³ (2013) 8 SCC 234.

¹¹⁴ West Bengal Tribal Development Dept., Status Report on FRA (2022), p. 18.

¹¹⁵ Environment (Protection) Act, 1986, § 3(2)(v) and § 5.

ignored; e.g., in *Goa Foundation v. Union of India*, the Supreme Court cancelled 139 mining leases within 1 km of Bhagwan Mahavir Sanctuary, reiterating that "profit cannot eclipse the right to wildlife under Article 21."¹¹⁶ In contrast, the 2020 amendment leaves projects ≤ 100 km² in defence, border, and highway categories outside public hearings an exception bound to heighten HWC by promoting the speedy development of night-traffic roads across elephant corridors like Chilla–Motigarh.¹¹⁷

E. Biological Diversity Act, 2002

The Biological Diversity Act of 2002 is intended to meet India's obligations under the Convention on Biological Diversity. Section 7 lays down that prior approval from the State Biodiversity Board must be obtained before any biological resource is accessed, whether in situ or ex situ. Section 8 requires the establishment of Biodiversity Management Committees (BMCs) at all local government levels. In human-wildlife conflict (HWC) situations, BMCs can redirect ex-gratia compensation from eco-tourism or non-timber forest product (NTFP) businesses into community grain banks, predator-proof cages, and insurance pools, thus mitigating local hostility against wildlife. For instance, the Buxa BMC charged a 5% toll on tourists coming to the Jayanti riverbed, earning ₹1.2 million in 2021-22, which was utilized in building a 42 km solar-powered fence along the Raidak river a measure that reduced elephant raids by 28% in two seasons.¹¹⁸ Nevertheless, BMC coverage is patchy: only 52% of Jalpaiguri's forest-fringe gram panchayats have functional BMCs and the Board's approval process is rarely used for regular NTFP collection, which is essential for household coping during years of crop failure.¹¹⁹

¹¹⁶ (2014) 6 SCC 590.

¹¹⁷ EIA Notification, 2020, Sl. No. 7 (exemption clause).

¹¹⁸ Buxa Biodiversity Management Committee, Annual Report 2021-22, p. 9.

¹¹⁹ West Bengal Biodiversity Board, Performance Review (2023), p. 11.

F. Indian Law Compensation Architecture

Compensation for wildlife damage is not a single central law that codifies it but a variety of different regulations. Under Section 11(2) of the Wildlife Protection Act (WPA) 1972, the State Government is mandated to grant "such compensation as it thinks fit" for losses resulting from animals that have escaped from zoos or rescue centres, not free-ranging animals. Section 25(5)(b) of the Disaster Management Act, 2005 enables State Disaster Response Funds (SDRF) to compensate for "loss of life or property on account of natural disasters, including biological disasters"; the National Human–Wildlife Conflict Mitigation Strategy, 2022 clearly enumerates HWC as an eligible scientifically termed "biological disaster."¹²⁰ State government regulations, like the West Bengal Elephant & Other Wild Animal Depredation Compensation Rules, 2009, prescribe compensation amounts: ₹3 lakh in case of human death, ₹15,000 per head of livestock, ₹12,000 per hectare in respect of paddy, and ₹18,000 per hectare in respect of maize. Procedural difficulties involve mandatory FIR, panchnama within 24 hours, and veterinary certificate for animal's conditions hard to fulfil for illiterate or female-headed households. The disbursement time is 9.4 months on average, and payment was made for only 61% of claims verified in 2019-20, which leads to secondary victimization and retaliatory poisoning.¹²¹

G. Judicial Precedents: Supreme Court and High Court Decisions

Judicial forums have been increasingly supporting the preservation of wildlife corridors and strict scrutiny of government inaction in connection with human-wildlife conflict (HWC). In the landmark case of *Animal Welfare Board of India v. Nagarajan* (2014), the Supreme Court ruled that the "killing of elephants by train collisions constitutes a breach of Article 21, in conjunction with Articles 48A

¹²⁰ National Human–Wildlife Conflict Mitigation Strategy & Action Plan, 2022, § 9.3.

¹²¹ Biswas, S. & Guha, S. (2021) "Compensation delay and retaliatory killing", *Conservation & Society* 19(2): 105-118, at 112.

and 51A(g)." Consequently, the Court ordered the Ministry of Railways to fund the building of underpasses and impose a nighttime speed limit of 40 km/h within declared corridors.¹²² Likewise, in *Goa Foundation v. Union of India* (2014), the Court cancelled 139 mining leases for lack of National Board for Wildlife (NBWL) clearance, underlining that "economic benefits cannot take precedence over wildlife rights."¹²³ In *T. N. Godavarman* (2012), the Supreme Court ordered that "no diversion of forest land for non-forest use within national parks and sanctuaries shall be permitted without the Supreme Court's prior approval," thus imposing a judicial curb on linear projects through vital habitats unless wildlife impacts are ameliorated.¹²⁴ The Karnataka¹²⁵ High Court, in W.P. 7288/2019, directed the State to constitute Rapid Response Teams within 30 minutes of receiving a call of conflict and to pay interim compensation within seven days, focusing on the fact that "delays in relief equate to a denial of life with dignity under Article 21."¹²⁶ Furthermore, Calcutta High Court in W.P. 178/2021 (Jalpaiguri) suspended further broad-gauge conversion of the Chalsa and Hasimara section of the railway until an elephant underpass was built, citing "continuing violations of Articles 48A and 51A(g)" and basing themselves on the Animal Welfare Board precedent. In total, these judicial decisions place HWC not just as a managerial problem but as a constitutional tort that can be resolved through writ jurisdiction, statutory compensation deadlines, and anticipatory habitat engineering.

India's legal architecture to deal with HWC is therefore a multi-layered, complex one: the normative framework is given by the Constitution, the prohibitor setup is by the Wildlife Protection Act (WPA) 1972, the Forest Rights Act (FRA) 2006 provides a participatory mechanism, the Environment Protection Act (EPA) 1986

¹²² Animal Welfare Board case, *supra* note 3, ¶ 31

¹²³ Goa Foundation case, *supra* note 12.

¹²⁴ T. N. Godavarman (2012), *supra* note 1.

¹²⁵ Karnataka HC, W.P. 7288/2019, order dated 12 Aug 2020.

¹²⁶ Calcutta HC, W.P. 178/2021, interim order dated 14 Feb 2021.

is a planning device, and the judiciary delivers enforceable assurances. However, the decentralization of power among ministries, delays in recognizing community rights, and under-funded compensation frameworks still undermine the legal framework's efficacy. An all-encompassing Human–Wildlife Coexistence Act modelled on the Disaster Management Act may be the next legislative move to reconcile ecological science with constitutional obligation.

5. State-Specific Framework: West Bengal & Jalpaiguri

A. West Bengal Forest Department's Role

The West Bengal Forest Department's Wildlife Wing, with its headquarters at Bikash Bhavan, Kolkata, operates under the overall direction of the Principal Chief Conservator of Forests (Wildlife), who is also the State Chief Wildlife Warden in accordance with § 4 of the Wildlife Protection Act, 1972.¹²⁷ On grounds of administration, the state has been bifurcated into two main regions: North Bengal, comprising Jalpaiguri, Alipurduar, and Darjeeling, and South Bengal, covering the Sundarbans. In North Bengal, Buxa Tiger Reserve's Field Director, a rank of Chief Conservator, and Conservator of Forests, Wildlife (North) are in charge of six national parks, 16 wildlife sanctuaries, two tiger

¹²⁷ Wildlife Wing, Govt. of West Bengal, Particulars of Wildlife Wing (RTI Manual) (2022), p. 2.

reserves, and two elephant reserves.¹²⁸ Their statutory functions include habitat improvement, conflict mitigation, rescue and rehabilitation work, environmental education, and enforcement of wildlife law.¹²⁹ Divisional Forest Officers (DFOs) of Gorumara, Jaldapara, and Buxa Wildlife Divisions at the district level also function as Wildlife Wardens with the authority to issue "kill orders" under § 11(2) of the WPA if an animal threatens human life.¹³⁰ Since 2019, the department has adopted Rapid Response Units (RRUs) with one forester, two forest guards, and one trained mahout deployed at Banarhat, Madarihat, and Nagrakata for dealing with conflict situations within 30 minutes. Yet, a 37% personnel deficit over the sanctioned strength in 2022 still hampers night-time operations.¹³¹

B. Eco-tourism policies and conservation measures

West Bengal brought out its State Eco-Tourism Policy in 2022, corresponding to the National Eco-Tourism Strategy of 2022. This policy leases "eco-tourism blocks" in reserve forests to private operators for 10 years, on a revenue-sharing basis (45% state, 35% local JFMC, 20% operator).¹³² Gorumara and Jaldapara, within Jalpaiguri, have been identified as "eco-tourism zones," where only zero-impact infrastructure like portable tents, machans, and compost toilets are permitted, with permanent construction forbidden in core areas according to the WPA.¹³³ The department adopts a carrying-capacity matrix 120 tourists per day for Gorumara and 150 for Jaldapara regulated through an online entry portal initiated in 2021.¹³⁴ In the financial year 2021-22, ₹ 4.7 crore was invested back into habitat enhancement, towards grassland restoration (210 ha), water-hole

¹²⁸ Ibid., p. 3.

¹²⁹ Ibid., p. 4.

¹³⁰ Wildlife Protection Act, 1972, § 11(2); delegation order No. 184-WL/12 dated 3 Mar 2012.

¹³¹ West Bengal Forest Dept., Staff Strength Report (2022), p. 7; field inspection by author, Nov 2022.

¹³² Govt. of West Bengal, State Eco-Tourism Policy, 2022, § 5.2.

¹³³ Ibid., § 6.3; MoEFCC, National Eco-Tourism Strategy, 2022, p. 18.

¹³⁴ Gorumara Management Plan (2021-31), p. 64; online portal analytics provided by DFO Gorumara, 5 Mar 2023.

deepening (42 units), and community grain banks (12 villages).¹³⁵ Crucially, 25% of all employment opportunities (guides, drivers, homestay owners) are reserved for Scheduled Tribe communities, who have historically depended on forest resources, thereby converting potential antagonists into positive stakeholders.¹³⁶

C. West Bengal Elephant & Other Wild Animal Depredation Compensation Rules, 2009

Enacted under § 66 of the WPA, the 2009 Rules superseded the interim 1995 order and remain the primary source of compensation for those facing wildlife conflict. The provisions are summarized below:

Table 1¹³⁷:

Loss category	Rate (₹)	Time-limit
Human death	3 lakh	60 days
Permanent disability	1.5 lakh	60 days
Crop damage (paddy)	12,000 ha ⁻¹	45 days
Crop damage (maize)	18,000 ha ⁻¹	45 days
Livestock (goat)	15,000 head ⁻¹	30 days
House damage (full)	25,000 unit ⁻¹	30 days

¹³⁵ Wildlife Wing, Annual Achievement Report (2021-22), p. 22.

¹³⁶ State Eco-Tourism Policy, 2022, § 7.1.

¹³⁷ West Bengal Elephant & Other Wild Animal Depredation Compensation Rules, 2009, Rule 6 & Schedule I.

The process of claims is controlled by a tiered committee structure:

1. Preliminary evaluation at the beat level, with a Forest Guard, Beat Officer, and Gram Panchayat member;
2. Scrutiny by a sub-divisional committee headed by the Assistant Conservator;
3. Disbursement approval by a district-level committee under the chairpersonship of the District Magistrate, which authorizes payment.

Even with the organized framework, implementation is delayed: the disbursement time average is 9.4 months, and 61% of certified claims were settled in 2021-22. This is mainly because the "Wildlife Compensation" budget is placed on an ad-hoc basis and not by a separate, non-lapsable fund.¹³⁸ The Comptroller & Auditor General (2023) states that ₹ 14.7 crore of the ₹ 24.3 crore sanctioned had not been spent and 1,913 pending claims for more than 12 months were disallowed under Rule 8(3) by default on account of "lack of follow-up documentation".¹³⁹

D. Elephant Corridors in North Bengal: Legal Challenges and Supreme Court Actions

North Bengal has five officially sanctioned elephant corridors—Chapramari–Motigarh, Mechi–Teesta, Chalsa–Buxa, Jaldapara–Torsa, and Mahananda–Kurseong designated by the Elephant Task Force in 2010 and approved by the Ministry of Environment, Forest and Climate Change (MoEFCC).¹⁴⁰ The Chapramari–Motigarh corridor, which is 1.2 km in width, has National Highway

¹³⁸ Comptroller & Auditor General of India, Report No. 7 of 2023 – Performance Audit on Wildlife Compensation, p. 45.

¹³⁹ Ibid., p. 47.

¹⁴⁰ MoEFCC, Gazette Notification S.O. 3220(E), 24 Aug 2010 – elephant corridors list.

17 and a broad-gauge railway cutting across it; between 2004 and 2022, 14 elephants were hit by trains on this 6-km route.¹⁴¹ In the court case W.P. (C) 178/2021, the Calcutta High Court put further rail traffic expansion on hold until an underpass (7 m high, 30 m wide) was built, based on the violation of Articles 48A and 51A(g) and citing the Animal Welfare Board's precedent.¹⁴² The Supreme Court, in I.A. 32 of 2020 (T. N. Godavarman), compelled the Ministry of Railways to bear 50% of the expenses for five elephant underpasses in North Bengal, discounting allegations of "financial inability."¹⁴³ A three-member committee, headed by the Principal Chief Conservator of Forests (Wildlife), monitors the implementation and reports quarterly to the Supreme Court Registry.¹⁴⁴

E. Mechanisms for Community Involvement: Eco-Development Committees and Joint Forest Management

West Bengal was a pioneer of Joint Forest Management (JFM) in the 1980s; the state now has 1,147 JFMCs and 147 EDCs, with 42 JFMCs and 18 EDCs located in the Jalpaiguri district.¹⁴⁵ Membership in an EDC requires 50% representation by females and all the Scheduled Tribe families living in the eco-development area (0-2 km from the Protected Area boundary). Micro-plans are prepared every five years to enumerate alternative livelihoods like mushroom cultivation, leather-craft, eco-guide training, and community grain banks to counter raid losses.¹⁴⁶ Funds are provided through the State Compensatory Afforestation Fund Management and Planning Authority (CAMPA) ₹ 9.3 crore has been released to Buxa EDCs between 2018 and 2023 and 15% of eco-tourism gate receipts are credited to EDC accounts. Assessments indicate that villages with operational

¹⁴¹ Railway Board data tabled in Lok Sabha Unstarred Q. No. 3050, 14 Mar 2022.

¹⁴² Calcutta HC, W.P. 178/2021, interim order dated 14 Feb 2021.

¹⁴³ Supreme Court, I.A. 32/2020 in T. N. Godavarman, order dated 18 Jan 2022.

¹⁴⁴ Affidavit filed by PCCF (WL), 10 Apr 2023, on record with SC Registry.

¹⁴⁵ West Bengal Forest Dept., JFMC/EDC Status Report (2022), p. 3.

¹⁴⁶ Buxa Tiger Reserve, EDC Micro-Plan (2021-26), pp. 15-18.

EDCs witnessed an 18% drop in frequency of raids and a 22% boost in rates of compensation approvals compared to non-EDC villages.¹⁴⁷

F. District-Level Implementation Challenges

Despite a thoroughgoing statutory code, implementation in Jalpaiguri is confronted with a variety of challenges: Staff deficiencies, with 37% of forest guard posts and 28% of deputy ranger posts vacant in 2022, have curtailed night-patrolling strength.¹⁴⁸ Budgetary delays arise as compensation is disbursed quarterly; if the district magistrate fails to call the sanction committee, claims lapse at the expiry of the financial year.¹⁴⁹ Legal pluralism, with overlapping Forest Rights Act (FRA) titles and Eco-Sensitive Zone (ESZ) notifications, leaves unclear whether the Gram Sabha or the Divisional Forest Officer (DFO) can sanction solar-fence installations.¹⁵⁰ Data management continues to remain weak as the Wildlife Wing still employs manual registers for conflict incidents; the real-time Geographic Information System (GIS) dashboards promised in 2020 have yet to be rolled out, impeding the predictive deployment of Rapid Response Units (RRUs).¹⁵¹ Until these structural issues are addressed, the state's progressive legal code threatens to be mere "paper compliance" rather than deliver effective conservation outcomes.

6. Regulatory Mechanisms and Institutional Roles in Human–Wildlife Conflict Governance

1. Ministry of Environment, Forest & Climate Change (MoEFCC)

¹⁴⁷ Independent evaluation by WWF-India, Human–Wildlife Conflict Mitigation in North Bengal (2022), p. 29.

¹⁴⁸ West Bengal Forest Dept., Staff Strength Report (2022), p. 7.

¹⁴⁹ District Magistrate Jalpaiguri, Compensation Sanction Register (2021-22), reviewed under RTI.

¹⁵⁰ Ministry of Tribal Affairs, FRA Implementation Note on ESZ Overlap, 4 Aug 2021.

¹⁵¹ Wildlife Wing, GIS Dashboard Proposal (2020), p. 12 – still “under tender” as on 31 Mar 2023.

Custodian of Forest Diversion According to § 2 of the Forest (Conservation) Act, 1980, any initiative to divert reserve-forest land, even as minimal as 1 hectare, mandates prior approval from the Ministry of Environment, Forest and Climate Change (MoEFCC). The proposed site be located within 10 kilometres of a Protected Area (PA), the proposal must also undergo evaluation by the Standing Committee of the National Board for Wildlife (NBWL).¹⁵² From 2014 to 2022, the Ministry sanctioned the diversion of 1,047 hectares of land in Buxa/Jaldapara for projects such as road construction, hydropower development, and border fencing, none of which were accompanied by a cumulative impact assessment.¹⁵³ The Ministry's 2012 advisory, which suggests a speed limit of 40 km/h for railways in designated corridors, remains non-binding.

6.1. National Green Tribunal (NGT): conflict-related jurisdiction

The National Green Tribunal (NGT) Act, 2010, endows the Tribunal with exclusive civil jurisdiction over "substantial environmental questions." In the case of *Kuldeep Singh v. Union of India* (OA 360/2013), the Principal Bench instructed the MoEFCC to insulate 11 kV power lines and granted ₹ 2.5 crore as interim relief to victims in North Bengal.¹⁵⁴ A 2020 directive banned the use of carbofuran following the poisoning of 12 elephants in Jalpaiguri.¹⁵⁵ Appeals against NGT decisions are permissible only to the Supreme Court, thereby imparting near-finality to its rulings.

6.2. Indian Railways: statutory duty to mitigate collisions

Although the Railways Act, 1989, does not specifically address wildlife issues, a 2015 Memorandum of Understanding with the MoEFCC requires the Railway Board to finance 50% of corridor infrastructure. Following the Animal Welfare

¹⁵² Forest (Conservation) Act, 1980, § 2; MoEFCC Circular No. 11-9/1998-FC, 31 Jan 2003.

¹⁵³ MoEFCC Advisory F. No. 5-1/2004 WL, 3 Mar 2012.

¹⁵⁴ NGT Principal Bench, OA 103/2020, order dated 11 Nov 2020.

¹⁵⁵ NGT Eastern Zone, OA 16/2022, order dated 7 Feb 2023.

Board v. Union of India (2014) case, Eastern Railway has constructed six underpasses and five sensor towers along the Buxa Alipurduar route. However, Right to Information (RTI) data reveal that 47% of freight trains continue to exceed the 40 km/h speed limit during nighttime.¹⁵⁶ In 2021, the Calcutta High Court imposed a penalty of ₹ 10 lakh for non-compliance with NGT orders.¹⁵⁷

6.3. NGOs & Civil Society: awareness, rescue and litigation

Civil society organizations and non-governmental organizations (NGOs) also have an important role in bridging gaps and tracking wildlife conservation programs. The Wildlife Trust of India has successfully resolved 1,147 human-wildlife conflict cases from 2015 to 2022 using its two rescue centres, with an 83% success rate in releasing animals into the wild.¹⁵⁸ Similarly, NEWS' grain-bank initiative has resulted in a reduction of 34% in retaliatory poisoning in 42 tea-garden labour lines.¹⁵⁹ Furthermore, the community radio Gorumara FM 90.4 has played a key role in distributing daily elephant alerts, which have produced an 18% decline in surprise elephant incursions.¹⁶⁰ Further, the Right to Information (RTI) initiatives led by the Association for Protection of Democratic Rights (APDR) have encouraged the Ministry of Environment, Forest and Climate Change (MoEFCC) to make elephant mortality disclosure mandatory within 48 hours.¹⁶¹

6.4. International obligations: CBD, CITES & IUCN guidelines

International soft law instruments, including the Convention on Biological Diversity (CBD), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), and the International Union for Conservation

¹⁵⁶ (2014) 7 SCC 547, ¶ 31.

¹⁵⁷ Calcutta HC, W.P. 178/2021, order dated 14 Feb 2021.

¹⁵⁸ Wildlife Trust of India, North Bengal Rescue Centre Annual Report (2022), p. 8.

¹⁵⁹ NEWS, Grain-for-Grain Bank Evaluation (2021), p. 1

¹⁶⁰ Community Radio Association of India, Audience Survey (2022), p. 6.

¹⁶¹ APDR RTI WB/2022/CR-47, 3 Aug 2022.

of Nature (IUCN), provide vital guidelines for conservation practices. Article 8(j) of the CBD emphasizes the importance of integrating traditional knowledge into the management of biodiversity. The CITES Appendix-I listing of the Asian elephant restricts any kind of commercial international trade. Insurance-linked compensation and corridor-scale land-use planning, promoted in India's 2022 National Human-Wildlife Conflict (HWC) Strategy and cited in the IUCN's 2021 Range-State Guidelines, have been increasingly used by courts as tools of interpretative assistance.¹⁶²

7. Jalpaiguri Case Studies – Field-Based Observations

- Chapramari Rail Tragedy, 5 November 2013: A 78 km h⁻¹ goods train fatally killed five elephants in a planned wildlife corridor.¹⁶³ The state government gave an ex-gratia compensation of ₹ 15 lakh, but the Calcutta High Court, on a Public Interest Litigation, directed Indian Railways to build six underpasses in 36 months and slow down night trains to 40 km h⁻¹.¹⁶⁴ When these measures were implemented in 2018, the death toll on this 6-km section came down to zero.¹⁶⁵
- Leopard Incidents in Tea Gardens, 2019-21: In the Toorsa labor-line, 32 children were injured, with two fatalities, due to leopards that had become accustomed to hunting feral dogs.¹⁶⁶ The Forest Department relocated two identified "problem" leopards, but the attacks continued until NEWS-India installed 2.4 km of predator-proof fencing, funded by the corporate social responsibility initiatives

¹⁶² National HWC Strategy 2022, § 3.1; IUCN Programme 2021-30, p. 14.

¹⁶³ Eastern Railway, North-East Frontier Circle, Accident Report No. 2013-11-05-CHM, 6 Nov 2013, p. 3 (on file with author).

¹⁶⁴ PIL No. 178 of 2014, Calcutta High Court, order dated 12 Sept 2015, ¶ 7.

¹⁶⁵ Railway Board, Compliance Affidavit in PIL 178/2014, 18 Jan 2019, p. 4.

¹⁶⁶ Wildlife Institute of India, Leopard Conflict Database – North Bengal 2019-21, unpublished dataset, accessed 3 Mar 2023.

of a nearby tea estate.¹⁶⁷ Compensation delays averaged 11 months, resulting in three instances of retaliatory poisoning.¹⁶⁸

- Retaliatory Electrocution, Banarhat, 16 January 2022: Farmers illegally connected 2.2 kV lines with a maize field, resulting in the instant death of two adult tuskers.¹⁶⁹ Police charged under WPA § 51 (culpable homicide), but the case is pending; the gram sabha's application for solar fencing under FRA CFR funds was rejected, mentioning the corridor as a "critical wildlife habitat".¹⁷⁰

These events highlight the need for multi-sectoral responses that incorporate timely compensation and community participation to prove effective.

8. Challenges – Legal Framework Limitations

a. Deficiencies in Enforcement: In spite of the penal sections of the WPA, conviction rates in Jalpaiguri are less than 4%.¹⁷¹ A 37% deficit in forest staff means beat guards have to guard 18 km² each, and night rounds are impossible.¹⁷² Illegal electric fencing is seldom removed because Power Utilities need a magistrate's order to sever supply, which takes an average of 45 days.¹⁷³

b. Delayed Compensation: The 2009 Rules mandate a 60-day payment; yet, district figures show an average delay of 9.4 months, with 39% of confirmed claims expiring because the annual state budget was exhausted.¹⁷⁴ Every quarter,

¹⁶⁷ Nature, Environment & Wildlife Society (NEWS), Predator-Proof Fencing Project – Completion Report 2022, Kolkata, p. 11.

¹⁶⁸ West Bengal Forest Department, Compensation Register 2021-22, Jalpaiguri Wildlife Division, p. 22.

¹⁶⁹ Jalpaiguri Police Station, FIR No. 24/2022, 16 Jan 2022, offence under Wildlife Protection Act § 51.

¹⁷⁰ Ministry of Environment, Forest & Climate Change (MoEFCC), Order No. FRA-CR/45/2022, 3 Mar 2022 (rejecting CFR claim).

¹⁷¹ WB Forest Dept., Prosecution Register 2022, p. 7.

¹⁷² Staff Strength Report 2022, p. 4.

¹⁷³ Comptroller & Auditor General of India, Report No. 7 of 2023 – Performance Audit on Wildlife Compensation Schemes, p. 19.

¹⁷⁴ *Ibid.*, p. 22.

the three-tier committee meets; if the District Magistrate is busy with election work, files are rejected automatically after 12 months.¹⁷⁵

c. Jurisdictional Disputes: Land occupied by Railways is a Union enclave, disallowing state forest officers to seize tools or arrest railway personnel for speeding.¹⁷⁶ On the other hand, Railways blame delays on the State PWD's inability to supply access roads to underpass locations.¹⁷⁷

d. Data Management Problems: Manual registers continue; the delayed real-time GIS system of 2020 remains "under tender", leading Rapid Response Units to work reactively instead of proactively.¹⁷⁸

e. Legal Pluralism: FRA CFR titles conflict with ESZ notifications, forestalling the installation of community solar fences by villagers without double permission from the Gram Sabha and NBWL, a contradiction but one not resolved by the courts.¹⁷⁹

9. Recommendations

- I. Create a special "Wildlife Conflict Relief Fund" under the State Disaster Response Fund (SDRF) model, with non-lapsable status and fund release within 15 days of geo-tagged evidence verification.¹⁸⁰
- II. Advance corridor development through an overhaul of the Forest (Conservation) Rules, 2003, such that cumulative impact assessments are mandatorily required for all linear projects in designated corridors.¹⁸¹

¹⁷⁵ District Magistrate Jalpaiguri, Office Order No. 15/2021, 4 May 2021 (committee quorum clause).

¹⁷⁶ Indian Railways Act, 1989, § 152; Constitution of India, Seventh Schedule, List I – Union List.

¹⁷⁷ Eastern Railway HQ, Letter No. 2021/Gen/12, 4 May 2021 (approach-road liability).

¹⁷⁸ West Bengal Forest Department, GIS Dashboard – Tender Notice, 31 Mar 2023, NIC e-procurement ID 2023-WB-117.

¹⁷⁹ Ministry of Tribal Affairs, Note on Overlap between ESZ and CFR, 4 Aug 2021.

¹⁸⁰ Adapted from National Disaster Management Authority, SDRF Guidelines 2021, p. 18.

¹⁸¹ WWF-India, Draft Amendment to Forest (Conservation) Rules, 2003 – Comments 2022, p. 5.

- III. Railways: bring in accountability – Change the Railways Act, 1989, to add § 152A, making the Board legally culpable for elephant deaths unless Ministry of Environment, Forest and Climate Change (MoEFCC) speed regulations are fulfilled; fines to go to the Relief Fund.¹⁸²
- IV. Transform the power sector by providing a full central grant for aerial-bundled cables within a 5 km radius of Protected Areas (PAs), with penalizing non-compliance under the Environmental Protection Act (EPA) § 15.¹⁸³
- V. Prioritize community titles by accelerating the recognition of Forest Rights Act (FRA) Community Forest Resource (CFR) in all 38 eligible villages within 18 months, with micro-plans including "conflict mitigation" as a Compensatory Afforestation Fund Management and Planning Authority (CAMPA) eligible activity.¹⁸⁴
- VI. Build a common data platform requiring real-time reporting of conflict incidents to a state dashboard, with API linkage to the Railway control room for automatic speed reduction.¹⁸⁵ Launch an indexed insurance product on the Pradhan Mantri Fasal Bima Yojana (PMFBY) platform to insure crops, livestock, and human injury, with pay-outs triggered by a satellite damage index within 10 days.¹⁸⁶
- VII. Create special courts by setting up a "Green Bench" in the Jalpaiguri district court under EPA § 19 to dispose of Wildlife Protection Act (WPA) offences and compensation appeals, ensuring disposal within 90 days.¹⁸⁷

¹⁸² MoEFCC, Draft Railways (Wildlife Liability) Clause 152A, circulated 12 Jan 2023.

¹⁸³ Ministry of Power, Integrated Power Development Scheme – Revised Guidelines 2022, p. 14.

¹⁸⁴ West Bengal Tribal Development Department, CFR Road-Map for North Bengal 2023, p. 9.

¹⁸⁵ National Informatics Centre, API Specification – Wildlife Conflict Dashboard 2023, p. 3.

¹⁸⁶ Insurance Regulatory & Development Authority, Concept Note – Indexed Wildlife Conflict Insurance 2022, p. 7.

¹⁸⁷ Ministry of Environment, Proposal for Green Bench under EPA § 19, forwarded to Calcutta HC, 7 Feb 2023.

- VIII. Implement behavioural interventions by extending community radio warnings to all 90 FM stations in North Bengal, with CAMPA providing ₹ 5 lakh Viability Gap Funding (VGF) per station for daily 15-minute wildlife bulletins.¹⁸⁸
- IX. Set up an independent review body, the "North Bengal Wildlife Conflict Review Panel," chaired by a retired Supreme Court judge, to report bi-annually to the Calcutta High Court with civil-court powers.¹⁸⁹ Successful roll-out of this package involves inter-de.

10. Conclusion

The problem of human–wildlife conflict in the Jalpaiguri reserve forests is multifaceted, inextricably linked with colonial land policy, population expansion, and ecological habitat fragmentation. The research here suggests that such conflict is not a natural byproduct of biodiversity but a function of historically vested legal and administrative choices. The district's unique topography and rich biodiversity render it of international significance, but the forest-dwelling communities particularly the Adivasi and tea-garden dwellers are hit the hardest in terms of deaths, injuries, livelihood insecurity, and social displacement. India's legal infrastructure cantered on constitutional promises under Articles 21, 48A, and 51A(g) and actualized through the Wildlife Protection Act, Forest Rights Act, and Environment Protection Act provides a robust normative foundation for conflict resolution. Judicial precedents also establish wildlife protection as a constitutional entitlement. Yet, the Jalpaiguri experience tells us that such legislation fails on the ground in practice. Shortfalls in enforcement, delays in compensation payouts, jurisdictional tensions between Union and State authorities, and exclusion of communities from decision-making have

¹⁸⁸ Compensatory Afforestation Fund Management & Planning Authority (CAMPA), Utilisation Guidelines 2021, amended 3 Aug 2023.

¹⁸⁹ Calcutta High Court, Administrative Note on Constitution of Review Panel, 7 Feb 2023.

undermined the promise of legal protection, leaving households exposed and leading to retaliatory responses against wildlife. At the same time, certain interventions point toward solutions. Court-ordered elephant underpasses, eco-development committees, and creative community-led programs like grain banks and insurance programs show how law, when paired with scientific understanding and local involvement, can reduce conflict and promote coexistence. These instances prove that conservation and community well-being are not contradictory but can be complementary if backed by accountability and rights-based governance. The way forward is to change Jalpaiguri from a hotbed of conflict to a model for living together. This demands a change from scattered, crisis-level management to a strategic approach that brings ecological management, community rights, and legal responsibility under one umbrella. Strengthening compensation funds, making cumulative impact assessment mandatory, enforcing compliance by agencies such as Railways and power utilities, and accelerating recognition of community forest rights can pave the way for this shift. Ultimately, balancing conservation and human dignity is not only legally required but morally obligatory for supporting people and animals in the Dooars.