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# Rescue of a New born Elephant Calf from a Deep Agricultural Well in Khaira Village, Jharkhand: A Case Study

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**ABSTRACT**

Human–elephant conflict is a critical conservation concern in Eastern and Central India, where expanding agriculture, fragmented forest corridors, and unprotected rural infrastructure increase risks for wildlife. On 15 October 2025, a 7-day-old elephant calf fell into a 30-meter deep agricultural well in Khaira Village, Hazaribag District, while moving with a small herd comprising two males and one female. The adult elephants remained near the well for several hours, exhibiting distress calls and repeated but unsuccessful attempts to retrieve the calf. Their behavior alerted local residents, who promptly informed the Forest Department and the Quick Response Team (QRT). A complex rescue operation was initiated using drone surveillance to assess the well interior, a water-displacement technique to elevate the calf gradually, and structural modification of the well using a JCB machine to create an accessible exit. After 7–8 hours of continuous intervention, the female elephant successfully lifted the calf out of the well, and the group safely retreated into the forest.

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This incident demonstrates how community vigilance, technological support, and coordinated multi-agency action can significantly improve outcomes in human–elephant conflict zones. The event also highlights broader ecological issues in Hazaribag, including attractive agricultural crops, rich forest biodiversity, and high wildlife movement, which collectively shape human–wildlife interactions.

***Keywords:*** Human–elephant conflict, Deep well accident, Drone-assisted monitoring, Community participation, Quick Response Team (QRT), Unprotected Wells, Conflict mitigation, Wildlife conservation.

## 1. INTRODUCTION

Human–elephant conflict (HEC) has risen sharply across Jharkhand due to rapid landscape transformation, increasing agricultural expansion, and the absence of secure elephant corridors (Kumari et al. 2024; Roy et al. 2025). Elephant herds frequently traverse farmlands and rural settlements in search of food, exposing them to hazards such as unprotected wells, electric fences, and obstructed pathways (Gadd 2011; La Grange et al. 2022). Hazaribag District, characterized by a mosaic of croplands, forest fragments, and human habitation, is a known movement zone for resident and migratory elephant groups (Graham et al. 2009; Koirala et al. 2016).

On 15 October 2025, a significant HEC-related incident occurred in Khaira Village when a week-old elephant calf slipped into a deep, unprotected agricultural well located adjacent to a vegetable field. The prolonged presence of adult elephants near the well and their distressed vocalizations alerted residents to the possibility of an emergency (Mason and Veasey 2010; Zeppelzauer and Stoeger 2015). Similar incidents have been reported from other parts of Jharkhand (Kanga et al. 2018; Tripathy et al. 2021; Bhengra and Bhengra 2025) but rescue operations involving newborn calves pose heightened challenges due to their vulnerability, the defensive behavior of adult elephants, and the structural risks associated with deep wells (Mann and Smuts 1998; Doyle et al. 2024). The agricultural landscape around Khaira is dominated by vegetable crops such as potato, tomato, lady's finger, peas, cauliflower, brinjal, and cabbage, all of which attract elephants due to their high moisture and nutritional content. The surrounding forests contain dominant tree species including Sal, Segun, Bamboo, Neem, Acacia, and Sissoo, supporting a diverse assemblage of wildlife such as wild boar, hyena, fox, and nilgai. These ecological and anthropogenic factors together increase the frequency of human–wildlife interactions and associated risks. This study aims to document the rescue operation in a detailed, scientific manner while also examining its ecological context, the role of community participation, and the implications for wildlife management in Hazaribag District.

## 2. MATERIALS and METHODS

### Study Area

The incident took place in Khaira Village, under P.O. Jharpo and P.S. Tatijharia of Hazaribag District, located within the Khaira Sub-Beat of the Ichak Beat, under Hazaribag Sadar Range of the Hazaribag West Forest Division, Jharkhand, India (**Figure 1**). The geographic location is marked at 24.096443° N and 85.571478° E. The surrounding landscape consists of agricultural fields, forest patches, and rural settlements.

Hazaribag district supports a rich agricultural system where common vegetable crops such as potato, tomato, lady's finger (okra), peas, cauliflower, brinjal, and cabbage are widely cultivated throughout the year. These croplands, especially during harvest seasons, frequently attract elephants and other wildlife due to their high nutritional value.

The region's vegetation includes important forest tree species such as Sal (*Shorea robusta*), Segun (*Tectona grandis*), Bamboo, Neem (*Azadirachta indica*), Acacia species, and Sissoo (*Dalbergia sissoo*), which form the primary forest structure around the village. These forests also support a variety of wildlife, including wild boar, hyena, fox, and nilgai, alongside the resident and migratory elephant populations. Villagers reported that elephants frequently traverse the area throughout the year, leading to crop damage, property destruction, and occasional human casualties.

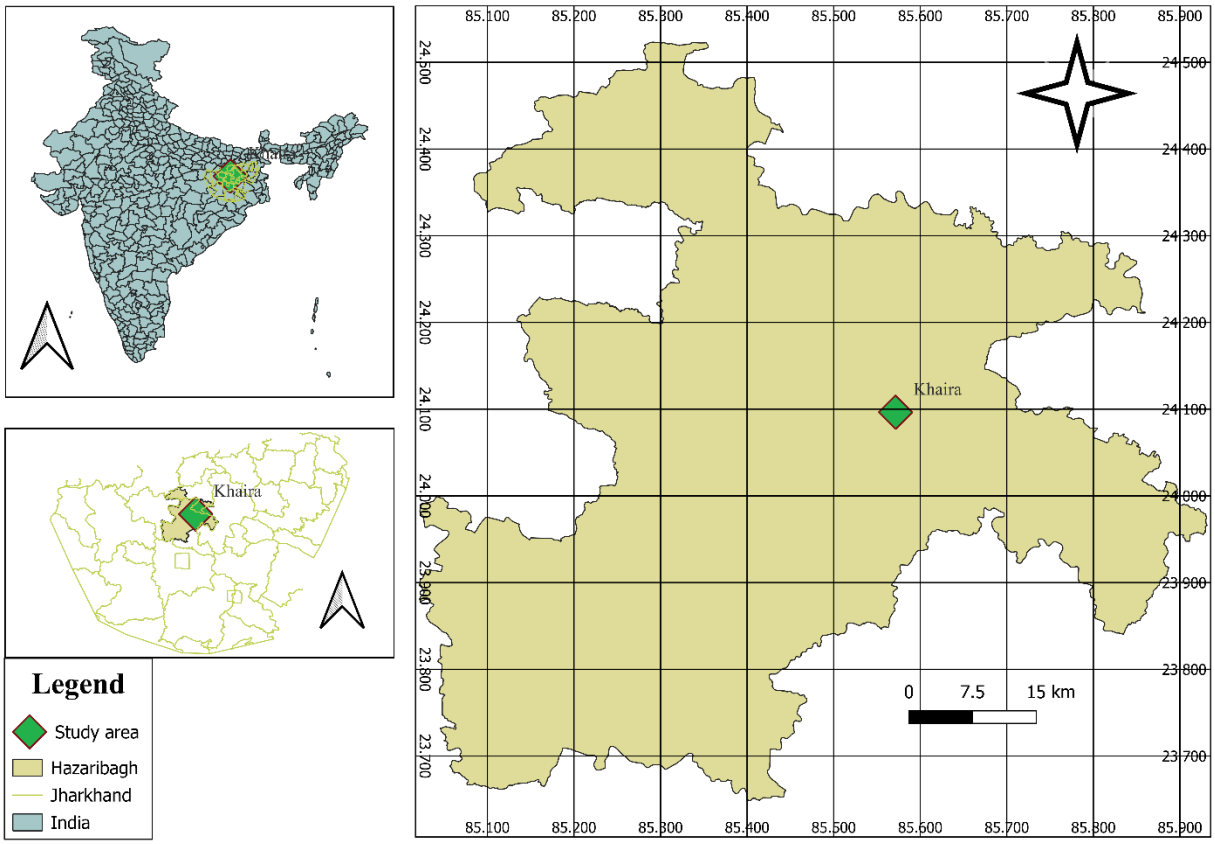


**Figure 1**. Map showing the location of in Khaira village, Hazaribag, Jharkhand.

## Field Methods

Information for this study was collected through direct observation, communication with Forest Department staff, drone-based visual assessments, and interviews with villagers present during the rescue. After villagers identified the presence of the distressed herd, they immediately contacted Forest Department staff and the Quick Response Team (QRT). On arrival, trained personnel deployed a drone to inspect the condition of the calf inside the well, identify hazards such as debris or sharp edges, and assess whether mechanical support or structural intervention was needed.

A water-displacement method was selected as the safest strategy. Water was pumped from a nearby functioning well using a high-capacity motor to steadily raise the water level in the rescue well. This technique allowed the calf to float and gradually reach a level where it could potentially be retrieved. Safety protocols were maintained throughout, ensuring minimal disturbance to the adult elephants, who remained within a close radius of the operation. Police personnel and villagers formed a perimeter to prevent crowding and reduce noise levels.

When the water level alone was insufficient for safe extraction due to the steep and narrow walls, a JCB machine was brought to the site. One side of the well wall was carefully broken to create a sloped exit path. Drone surveillance continued to monitor the calf's position and verify structural stability. After approximately 7–8 hours of coordinated intervention, spanning from 7:00 PM to 4:00 AM, the female elephant approached the opening, secured the calf with her trunk, and lifted it out. The herd immediately regrouped and moved toward the forest.

## 3. FINDINGS

The rescue operation in Khaira village yielded several important findings regarding both the incident and the broader context of human–elephant interactions in the region. The first and most significant observation was the crucial role of the local community. Villagers were the first to notice the abnormal behavior of the elephant herd, which remained unusually stationary near the cropland well. Their prompt reporting to the Forest Department enabled a timely response, highlighting the value of community vigilance in wildlife emergencies. The deployment of drone technology proved indispensable, providing real-time visual access to the 30-meter-deep well where direct human entry was impossible. Drone footage confirmed that the seven-day-old elephant calf was alive, afloat, and capable of responding despite the depth and confinement of the structure. This technological intervention also guided rescuers in evaluating the condition of the well and determining the safest and most effective rescue strategy.

The combined rescue method—using a water pump to gradually fill the well and lifting the calf closer to the surface, followed by strategic structural modification using a JCB machine—proved highly effective. As water from an adjacent well was pumped into the accident site, the rising water level helped keep the calf buoyant and reduced the risk of exhaustion or drowning. When the water-based method reached its limit, the JCB was used to break a portion of the well's wall, creating an escape passage. This coordinated intervention allowed the female elephant to lift the calf safely, showcasing strong maternal instincts and reinforcing the importance of allowing natural behavioral responses wherever possible. The entire rescue took approximately seven to eight hours during the night (7 PM to 4 AM), and remarkably, no injuries were reported among the calf, adult elephants, villagers, or rescue personnel.

Another significant finding was the behavior of the adult elephants. Throughout the rescue operation, the herd maintained a calm and observant demeanor. They neither displayed aggression nor attempted to interfere with the rescue team, suggesting a level of tolerance or recognition that humans were aiding the trapped calf. The successful reunification of the calf with its herd was immediate, and once the calf was retrieved, the elephants moved away from the cropland and returned to the forest. Villagers also noted that minimal crop damage occurred during the incident, as the herd was primarily focused on the distressed calf rather than foraging.

Interviews with local residents during the rescue revealed chronic human–elephant conflict in the region. Elephants regularly traverse agricultural lands in Khaira village, attracted by diverse crop fields including potato, tomato, lady's finger, peas, cauliflower, cabbage, and brinjal. The surrounding forests, dominated by species such as Sal, Segun, bamboo, neem, acacia, and sissoo, support a rich wildlife community that includes wild boar, hyena, fox, and nilgai. This ecological richness contributes to the frequent overlap between human settlements and wildlife movement. Annual reports of crop loss, property damage, and even human fatalities confirm that such conflict is ongoing and severe. The successful rescue underscores both the effectiveness of coordinated human–elephant cooperation and the urgent need for long-term mitigation strategies to prevent similar incidents.

## 4. DISCUSSIONS

This incident provides a compelling example of how integrated rescue strategies—combining modern technology, community involvement, and mechanical interventions—can significantly enhance the success and safety of wildlife rescue operations. The coordinated use of a drone for aerial assessment was particularly effective, as it eliminated the need for human entry into a structurally unstable, 30-meter-deep well. Drone surveillance allowed continuous real-time monitoring of the calf's condition, well depth, water-level rise, and potential structural hazards. Such technology has become increasingly indispensable in wildlife conservation, especially when dealing with confined or dangerous environments where traditional rescue methods may expose personnel to severe risks.

The adoption of the water-displacement technique, in which water is pumped into a well to raise a trapped animal toward the surface, further validated its utility in large-mammal rescue operations. This approach minimizes direct physical contact and reduces stress on the animal, while maintaining a safer environment for the rescue team. In this case, the technique kept the newborn calf buoyant for several hours and allowed rescuers enough time to plan the next stage of intervention. The eventual use of mechanical assistance—specifically, a JCB machine to break part of the well wall—demonstrated the importance of adaptive management during emergencies. When the water level alone was insufficient to bring the calf within reach, controlled structural modification created the necessary escape path, ultimately enabling the female elephant to retrieve her calf. This multi-step approach illustrates that flexible, situation-specific rescue strategies are essential when responding to wildlife emergencies in rural landscapes.

The environmental and socioecological context of Khaira Village played a significant role in both the incident and its outcome. Rural districts like Hazaribag contain numerous uncovered agricultural wells that pose ongoing threats to wildlife, livestock, and humans. Elephants frequently traverse these landscapes, driven by both traditional migratory routes and the availability of highly palatable vegetable crops such as potato, brinjal, cauliflower, peas, cabbage, tomato, and lady's finger. These crops act as attractants, drawing elephant herds close to human settlements and increasing the likelihood of encounters and accidents. The forested surroundings, dominated by species like Sal, Segun, bamboo, neem, acacia, and sissoo, support a wide range of wildlife, including wild boar, hyena, fox, and nilgai. This biodiversity reflects the ecological vibrancy of the region, but it also heightens the frequency of human–wildlife interactions. The incident therefore occurred within a broader landscape characterized by overlapping ecological and agricultural systems, where conflict is common and often unavoidable.

Additionally, the behaviors observed during the rescue highlight important aspects of elephant cognition and social structure. Throughout the operation, the adult elephants remained calm, vigilant, and non-aggressive, despite the presence of humans, machinery, lights, and noise during nighttime hours. Their tolerance and restraint suggest a nuanced understanding of human intentions, especially in a context where humans were actively attempting to assist a distressed calf. This observation aligns with emerging research on elephant empathy, problem-solving abilities, and cooperative behavior, further emphasizing the value of non-confrontational rescue approaches that respect the animals' natural social dynamics.

The response of the local community also provides insight into the potential for effective coexistence in high-conflict landscapes. Villagers acted quickly upon noticing the herd's unusual behavior, informed the Forest Department, and actively supported the rescue operation alongside trained personnel. Their involvement demonstrates the growing recognition among communities that conflict mitigation and conservation success depend on collaborative action. In regions like Khaira, where elephants move throughout the year and incidents such as crop raiding, property damage, or human injuries are common, community-based conservation becomes not only beneficial but essential. The cooperation shown during this rescue highlights a positive model for future interventions, underscoring how shared responsibility and communication between residents and authorities can greatly improve outcomes. This case exemplifies the complex interplay between environment, wildlife behavior, technology, and human engagement in managing human–elephant conflict. While the rescue was successful, it reinforces the urgent need for preventive measures, including well protection, improved landscape planning, and continued monitoring in elephant-dominated areas. Long-term strategies that integrate ecological understanding with community-led initiatives will be vital for reducing conflict and ensuring safer coexistence for both elephants and rural populations.

## 5. CONCLUSIONS

The successful rescue of the 7-day-old elephant calf in Khaira Village demonstrates the critical importance of coordinated multi-stakeholder intervention during wildlife emergencies. The combined efforts of villagers, Forest Department personnel, and rapid-response teams played a decisive role in ensuring the calf's safe recovery. The strategic integration of drone-based assessment, water-level elevation, and controlled structural modification of the well proved highly effective, enabling a complex rescue operation to be carried out without harm to the animals or human participants. The calm and cooperative behavior exhibited by the adult elephants throughout the operation further indicates that carefully managed human intervention can minimize stress and reduce the risk of conflict, even in high-tension scenarios involving large mammals.

The operation's success, the incident highlights deeper systemic challenges within the region. The widespread presence of uncovered agricultural wells, combined with frequent elephant movement through croplands, creates a persistent risk for both wildlife and rural communities in Hazaribag. As human–elephant interactions continue to intensify, the potential for accidents, crop damage, property loss, and fatalities remains high. This case underscores the urgent need for preventive infrastructure, improved land-use planning, and long-term conflict mitigation strategies. Proactive measures, community awareness, and sustained collaboration between local residents and forest authorities will be essential to preventing similar incidents in the future and fostering safer coexistence between humans and elephants in ecologically dynamic landscapes.

## 6. RECOMMENDATIONS

To effectively mitigate human–elephant conflict and enhance wildlife safety in Hazaribagh and surrounding regions, several strategic conservation measures are recommended. First, all open agricultural wells and similar hazardous structures located within known elephant movement zones should be urgently covered or fenced to prevent accidental falls involving wildlife, livestock, and local residents. The establishment of protected elephant corridors is equally essential to facilitate unhindered movement of elephant herds, thereby reducing their entry into densely inhabited settlements and agricultural fields. In addition, the creation of a specialized rapid-response wildlife rescue team equipped with drones, water pumps, advanced communication tools, and night-operation gear—would significantly improve the efficiency and safety of rescue operations. Regular community awareness and capacity-building programs should be conducted to educate villagers on early conflict reporting, maintaining safe distances, and adopting precautionary measures that minimize risk. At a broader scale, landscape-level planning must incorporate wildlife movement pathways, crop-vulnerability patterns, and habitat restoration strategies to ensure long-term coexistence. Periodic monitoring of high-risk structures, including wells, pits, trenches, and boundary walls, by forest officials with support from community volunteers, is necessary to identify and address potential threats promptly. Finally, promoting the use of elephant-resistant crops in high-conflict zones can reduce crop-raiding incidents by lowering the attractiveness of farmlands to elephants. Collectively, these recommendations provide a comprehensive framework for safeguarding wildlife, protecting human communities, and fostering sustainable human–elephant coexistence in the region.

**Appendix:**

**Figure 2.** Rescue team members redirecting water through a hose from a nearby functioning well into the deep agricultural well where the newborn elephant calf had fallen, using the water-displacement method to gradually raise the calf toward the surface.


**Figure 3.** Forest officials and local villagers observe cautiously as two adult elephants approach the open well in Khaira Village during the early hours of 15 October 2025. The presence of fire torches and coordinated human monitoring helped keep the herd calm and at a safe distance throughout the rescue operation of the trapped 7-day-old calf.

**Figure 4.** The adult elephant reaching into the water-filled agricultural well to assist the stranded newborn calf, which has risen near the surface following the water-displacement effort during the late-night rescue operation in Khaira Village.


**Figure 5.** Night-time rescue operation in progress at Khaira Village, where forest officials and local residents work together using a JCB machine and controlled fire illumination to safely access the 30-meter-deep well during the rescue of a trapped 7-day-old elephant calf (15-10-2025, 02:45 hrs).

**Figure 6.** Villagers using flaming torches to guide the reunited elephant herd away from the rescue site after the calf was successfully lifted from the well, ensuring the animals moved safely back toward the forest during the nighttime operation.

**Figure 7.** A mother elephant gently guides her rescued calf out of the broken well structure during the early-morning operation, illuminated by rescue lights and controlled fire used for crowd management. The scene captures the critical moment when the calf, exhausted but safe, is reunited with its mother after the coordinated rescue effort in Khaira Village.

**Figure 8.** A local resident stands beside the partially damaged open well in Khaira Village, Jharkhand, where the 7-day-old elephant calf accidentally fell on 15 October 2025. The photograph, captured after the rescue operation, highlights the structural vulnerability of such wells and the urgent need for preventive measures to reduce wildlife accidents in elephant-movement zones.

**Figure 9.** After the successful rescue of the elephant calf, the Divisional Forest Officer met the local villagers and the village Pradhan to discuss the incident and ongoing human–elephant conflict issues.

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**AUTHORS' CONTRIBUTIONS**

M.P. carried out fieldwork and photography, while M.A.I.M. was responsible for study design, fieldwork, photography, data analysis, map creation, drafting the original manuscript, and subsequent review and editing.

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