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HUMAN-WILDLIFE CONFLICT IN INDIA: CAUSES, CONSEQUENCES, AND REMEDIES

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ABSTRACT

Human-wildlife conflict (HWC) in India is a significant environmental and socio-economic challenge, fuelled by factors like habitat destruction, rising populations, and shifts in land use. This paper delves into the root causes, effects, and possible solutions for HWC in India, particularly focusing on conflicts involving species such as elephants, tigers, leopards, and crocodiles. It sheds light on the ecological, economic, and social repercussions of these conflicts and suggests a comprehensive approach to addressing them, which includes habitat restoration, engaging local communities, and leveraging technology. By examining various case studies and existing policies, the paper emphasizes the importance of integrated strategies that harmonize conservation efforts with the well-being of human populations.

Keywords: Causes, Consequences, Remedies

1. INTRODUCTION

Conflict between the demands and behaviors of wildlife and human interests is known as human-wildlife conflict (HWC), and it frequently has detrimental effects on both. HWC is a major issue in India, a biodiversity hotspot with a population of more than 1.4 billion. 60% of Asian elephants and 70% of the world's tiger population live in the nation, along with many other animals that regularly clash with human populations. These conflicts require immediate resolution because they endanger human safety, livelihoods, and biodiversity.

1.1. THIS PAPER AIMS TO

1) Determine the main causes of HWC in India is the first goal of this article.
2) Consider the social, economic, and ecological ramifications.
3) To lessen disagreements, suggest evidence-based solutions.

2. CAUSES OF HUMAN-WILDLIFE CONFLICT IN INDIA

2.1. LOSS AND FRAGMENTATION OF HABITAT

Fast urbanization, expansion of agriculture, and development have led to enormous loss of wildlife habitats. For example, deforestation of forest corridors has compelled species such as elephants and tigers to human-dominated environments. The Ministry of Environment, Forest and Climate Change (MoEFCC) stated that India lost 1.6 million hectares of forest cover between 2000 and 2020, worsening HWC.

2.2. HUMAN POPULATION INCREASE AND ENCROACHMENT

The increasing population of India has resulted in more encroachment into habitats of wildlife. Villages and agricultural lands now adjoin protected reserves such as Jim Corbett National

Park and Kaziranga National Park, raising the chances of encountering wildlife.

2.3. COMPETITION FOR RESOURCES

Wildlife tends to compete with humans for resources like water, space, and food. Crop-raiding elephants and nilgai, leopards' livestock predation, and competition for fishing with crocodiles are routine. For instance, in Assam, there are routine raids by elephants into paddy fields, which results in heavy crop damage.

2.4. CLIMATE CHANGE AND RESOURCE SCARCITY

Climate-related changes, like droughts and changed migration patterns, drive wildlife into human space for food and water. For example, urban outskirts have been increasingly found with leopards because of the dwindling prey base in forests.

2.5. LACK OF AWARENESS AND INFRASTRUCTURE

Limited community knowledge regarding wildlife habits and poor infrastructure, including fencing or early warning systems, are factors that lead to conflict. Poaching and retaliatory attacks on wildlife add to the tension.

3. IMPACTS OF HUMAN-WILDLIFE CONFLICT

3.1. ECOLOGICAL IMPACTS

HWC upsets ecosystems by modifying species behavior and population patterns. Retaliation killings of predators such as tigers and leopards imperil their existence, with India recording more than 1,000 leopard deaths resulting from human activity between 2015 and 2020. Habitat degradation diminishes biodiversity, impacting prey species and

3.2. ECONOMIC LOSSES

HWC inflicts serious economic loss, especially on agriculture-based populations. An estimated loss of $10 million annually to farmers due to crop loss by elephants in Odisha alone was estimated in a 2021 report. Livestock killing also overwhelms rural economies, with leopards and wolves accounting for thousands of cattle loss every year.

3.3. SOCIAL AND HUMAN COSTS

HWC causes loss of human life and injury. Based on MoEFCC statistics, more than 500 individuals are reported killed every year in elephant attacks, with Odisha, Jharkhand, and Assam being the worst hit. Such occurrences instill fear and animosity towards wildlife, sabotaging conservation efforts.

3.4. CULTURAL AND PSYCHOLOGICAL IMPACTS

Recurring attacks undermine cultural respect for wildlife, long a cornerstone of India's conservation culture. Psychological trauma for affected communities, including children exposed to attacks, is increasingly becoming an issue.

4. CASE STUDIES OF HUMAN-WILDLIFE CONFLICT IN INDIA

4.1. ELEPHANT-HUMAN CONFLICT IN ASSAM

Kaziranga National Park, a UNESCO World Heritage Site, is an elephant-human conflict hotspot. Elephants destroy crops in surrounding villages, and in retaliation, humans poison or electrocute them. In 2023, more than 60 human fatalities were reported in Assam from elephant attacks.

4.2. LEOPARD-HUMAN CONFLICT IN URBAN FRINGES

Leopards entering urban centers such as Mumbai and Bengaluru have led to panic and injuries. The Sanjay Gandhi National Park in Mumbai recorded 20 leopard attacks on human beings between the years 2018 and 2023, triggered by habitat encroachment and prey shortages.

4.3. TIGER-HUMAN CONFLICT IN SUNDARBANS

The Sundarbans, where the Bengal tiger resides, is plagued with common conflicts caused by human activities such as fishing and honey harvesting in tiger habitats. More than 100 tiger attacks on humans were documented in the years 2015-2020, most of them leading to retaliatory killings.

5. SOLUTIONS AND REDUCTION MEASURES TO MITIGATE THE PROBLEM

5.1. HABITAT RESTORATION AND CORRIDOR CREATION

Restoration of damaged habitats and establishment of wildlife corridors can minimize HWC. Efforts such as the National Elephant Corridor Project are intended to provide safe passage for elephants, reducing their intrusions into human habitations. Afforestation and land-use planning are essential to this process.

5.2. COMMUNITY-BASED CONSERVATION

Involving local communities with education, compensation programs, and sustainable livelihoods can mitigate hostility towards wildlife. For instance, Corbett National Park's "Eco-Development Committees" engage locals in conservation efforts and decrease conflict.

5.3. TECHNOLOGICAL INTERVENTIONS

Emerging technologies, including early warning systems, drones, and GPS tracking, can track wildlife movement and warn communities. Solar-powered fences in Karnataka have decreased elephant crop-raiding by 70%.

5.4. POLICY AND LEGAL FRAMEWORK

Strengthening legislation such as the Wildlife Protection Act (1972) and enhanced spending on conservation initiatives are crucial. Prompt and sufficient compensation for losses due to HWC must be provided to establish trust between concerned communities.

5.5. CLIMATE ADAPTATION MEASURES

Mitigation of climate change effects, such as water shortage, can help to minimize competition for resources. Building artificial water bodies within forests and encouraging drought-resistant crops can reduce wildlife entry into human domains.

6. DISCUSSION

The dynamic interaction of ecological, economic, and social components of HWC demands an integrated strategy. Although policy and technological interventions are promising, their efficacy is contingent on community engagement and funding. The country's distinctive cultural respect for wildlife presents a chance to cultivate coexistence, but corruption, delayed compensation, and urbanization need to be tackled. Comparative lessons from Africa, where community-based models have diminished HWC, can be used to guide India's approach.

7. CONCLUSION

India's human-wildlife conflict is a multifaceted problem fueled by habitat destruction, population pressure, and competition for resources. Its effects pose threats to both human livelihoods and the conservation of biodiversity. India can counter HWC effectively by adopting a combination of habitat restoration, community involvement, and technology. Future research would be well advised to assess the long-term effectiveness of mitigation efforts and upscale successful models to different ecosystems.

CONFLICT OF INTERESTS

None.

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