

## **Analysis of causes, impacts and mitigation strategies for human-elephant conflict: A case study in Anuradhapura District of Sri Lanka**

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### **Abstract**

Human-elephant conflict (HEC) is one of the frequent phenomena in Sri Lanka ever than before due to a variety of reasons mainly induced by human activities such as deforestation, fragmentation of elephant habitat, scarcity of water and food for elephants, etc. As a result of HEC annually around 200-250 elephants die while 60-80 people also lose their lives. The cost of damages exceed USD10 million for crops and property damage in Sri Lanka. Asian elephant is one of the endangered species and Sri Lanka provides habitat for around 4000-5000 elephants. Electrical fences, elephant prisons, elephant drives etc. are used to mitigate the HEC but records indicate that there is no reduction. This research was carried out in Anuradhapura district with the aim of identifying causes, impacts and effective mitigation strategies in order to find out the sustainable solution hence achieving resilience for this burning issue. Primary data was collected through questionnaires and key person interviews and sources of secondary data were the Department of Wildlife Conservation, District Disaster Management office in Anuradhapura Secretariat, relevant published research articles, books, and websites. Pilot survey was done in the Mihintale Divisional Secretariat area using a sample of 50 households. Data were analyzed using mix methods and maps were produced using Geographic Information Systems (GIS). Results highlighted that 159 elephants and 51 people have faced death due to HEC in Anuradhapura during the last five years. A large number of elephant deaths were reported in Horowpothna 38(24%), Thirappane 17(11%), and Mahawilachchiya 13(8%). Major reason for elephant deaths are *Hakka-Patas* (Jaw explosion) 41%, being shot (30%), and electrocuted (20%). There is a spatial variation of using these killing methods. The highest number of human deaths were reported in Medawachiya 9(18%), Thirappane 8(17%) and Nuwaragampalatha Central 8(17%). Of the human victims 85% were men and breadwinners with their families highly affected on. It was found that crop and property damage caused by elephants and both elephants and human deaths have been increasing in recent past due to HEC. While using physical barriers, it is very important to use integrated approaches such as make awareness programmes to change the human behavior, introducing effective insurance system and making a preparedness plan with the participation of all responsible stakeholders such as government, officers, researchers and the public.

**Keywords:** *Endangered species, Human-elephant conflict, Impacts, Mitigation, Resilience*

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