Tamil Nadu launches state of the-Art AI enabled Elephant collision prevention system on Railway tracks in Madukkarai, Coimbatore District.

The Tamil Nadu Forest department launched its ambitious Artificial Intelligence & Machine Learning enabled surveillance system to prevent death of elephants on railway tracks on 9th february2024. The project was launched-by the Minister for Forest Dr.M.Mathiventhan in the presence of Tmt. Supriya Sahu, Additional Chief Secretary to the Government, Department of Environment, Climate Change and Forest Department and Thiru.Srinivas.R.Reddy, Principal Chief Conservator of Forests & Chief Wildlife Warden on 09.02.2024 at Madukkarai, Coimbatore District.

The Coimbatore Forest division has experienced a significant increase in the occurrence of Human-Elephant Conflict (HEC) in recent times. Elephants in the Coimbatore Forest division are seasonal migrants, who move from Nilgiris and Sathyamangalam to the southern region of Kerala state forest areas through Coimbatore Forest division. Specific locations, such as Walayar, Bolampatty, Anaikatti reserve forests, Gopinari reserve forests, Hulical, Jaccanari slopes, Nilgiris Eastern Slope reserve forests, Sholakkarai, Singapathy, and Iruttupallam blocks, are their preferred retreats during the rainy season.

The rising elephant population, disturbances in migration corridors, increased developmental activities in and along the animal migratory paths, changes in land use patterns and agricultural practices, anthropogenic pressure, and linear infrastructure developments have severe impacts on elephant behaviour, leading to negative interactions between humans and elephants. These factors contribute to the increasing instances of Human-Elephant Conflict in the region.

In Coimbatore Forest Division, it is recorded that elephants had strayed out about 9000 times in the past three years from 2021 to 2023. One of the major conflict issues in the Coimbatore division was elephant crossing the railway track in Madukkarai range and train hit accidents. There are two railway tracks passing through Solakarai beat and Bolampatti Block – I Reserved Forests in Madukkarai Range. This forest area is sharing its boundary with Kerala forests along the Walayar river and are regularly visited by elephants. Unfortunately, 11 elephants have died so far, due to collisions with trains since 2008, including young calves and juveniles. Although sincere efforts day and night involving railway track forest staff and watchers were done, also underpasses and other measures were jointly done by railways and forest; such incidents could not be drastically reduced.

To find an effective solution, the Government after consulting with experts, decided to implement Artificial Intelligence enabled autonomous surveillance system to monitor the movement of elephants 24x7 to effectively track the elephants along the tracks and avoid the accidents completely. After conducting field investigation, the most vulnerable stretch of 7 Kms of Railway track was identified for implementing the project. The Government had sanctioned an amount of Rs.724.00/- Lakhs (Rs. Seven Crore Twenty Four lakhs only) for the installation of the artificial intelligence system.

The AI based surveillance system has 12 high towers fitted with both thermal and normal cameras, installed at strategic locations along the track in the Bolampatti Block – I Forests, 500 m apart from each other covering all the important elephant crossing areas, giving 150 m coverage on either side of the track for early detection of animal movement. The sensed data is automatically transferred to the control room that processes the data collected from the field on real time basis. The front line staffs of forest department along with technical team are available at the control room on shift basis to monitor the animal movement and inform the loco pilots of Railways through calls, SMS and alerts. In addition to that hooters and digital display alerts are also placed on the tracks for the loco pilots to see

and act well in advance in the event of any animal presence along the two tracks. The Forest department and the railway official's work in sync to prevent accidents based on information generated by Artificial Intelligence. This Artificial Intelligence generated data not only prevent accidents, it gives valuable data on the elephant movement, elephant behaviour, profiling of individual elephant and further morphological and behavioural studies for future decision making.

Hon'ble Minister for Forest Dr.M.Mathiventhan inaugurated the project, Thiru.R.Vetriselvan, Hon'ble Deputy Mayor, Coimbatore, Thiru Subrat Mohapatra, Principal Chief Conservator of Forests & Head of Forests Force, Thiru. Deepak Srivastava, Mission Director Green Tamil Nadu Mission & Member secretary Wetland Authority, Thiru S. Ramasubramanian, Conservator of Forests and Field Director, Anamalai Tiger Reserve, Coimbatore, Thiru.N.Jayaraj, District Forest Officer, Coimbatore, Thiru Mr.S.Jaya Krishnan Additional Divisional Railway Manager, Southern Railway, Palaghat, Mr.Anshul Bharathi, Divisional Engineer, Southern Railways, East Palaghat, Mr.Vijay Karunakaran, CEO, Advisory member, Public Representatives, officials of all departments, representatives of NGOs, friends of media and special invitees / staff from the neighbouring States of Kerala were present at the occasion.

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