

Climate Change: A Possible Cause Behind the Nipah Outbreak

Nipah virus outbreak has claimed at least 11 lives in Kerala. Could human factors be responsible for it?

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ENVIRONMENT

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“Climate change is real. It is happening right now, it is the most urgent threat facing our entire species and we need to work collectively together and stop procrastinating.”

This is what Hollywood actor Leonardo Di Caprio said during his Oscar acceptance speech in 2016.

Two years later, with at least 11 people dead in Kerala because of a Nipah virus outbreak, the reality has hit home. Could the loss of natural habitat of bats have led to the current situation?

Nipah virus (NiV) infection is a newly emerging zoonosis that causes severe disease in both animals and humans. The natural host of the virus are fruit bats of the Pteropodidae family, *Pteropus genus*.

Could Loss of Natural Habitat Lead to the Virus Outbreak?

According to a World Health Organization (WHO) fact sheet, "there is strong evidence that emergence of bat-related viral infection communicable to humans and animals has been attributed to the loss of natural habitats of bats."

As the flying fox habitat is destroyed by human activity, the bats get stressed and hungry, their immune system gets weaker, their virus load goes up and a lot of virus spills out in their urine and saliva.

WHO report

Habitat loss and climate change directly results in loss of food resources, causing nutritional stress for the flying foxes, and hence they migrate closer to urban areas. Citing a 1998 study conducted in Malaysia, where the virus was first identified, a report by *The Hindu* said the areas worst affected by the virus were those with maximum deforestation.

Rohit Chakravarty, who studies bats in India, told *The Hindu* that forests getting fragmented and hungry bats coming closer to humans habitation, causes the transmission of the disease.

Speaking to **FIT**, Prof Ramanan Laxminarayan of Centre for Disease Dynamics, Economics and Policy said:

Bats and humans share a lot of common diseases. And another species that shares a lot of common diseases with humans is pigs. In the first instance, the disease traveled from bats to pigs and pigs became the intermediate source carrying the disease to us.

Seasonal Change Could Also be a Possible Threat

The WHO report also stated that seasonal variations or “stressful physiological conditions” may also cause virus shedding by the flying foxes. In a study conducted in Thailand, it was found that the period between April to June was most vulnerable to the Nipah virus outbreak – with things getting worse during the month of May. The period April-June was the time (highest in May) when viral RNA could be mainly detected in urine which was associated with a fluctuation of population numbers that was observed only in May and correlated with young bats leaving to fly. WHO report

However, the first Nipah virus outbreak in India (2001) and Bangladesh (2004) were recorded in winter months, and the cause was traced back to fresh date palm sap contaminated by fruit bats, which “may have been responsible for indirect transmission of Nipah virus to humans.”

In India, the Nipah virus had broken out in West Bengal’s Siliguri and had claimed 45 of the 65 persons infected by the virus. The WHO report also noted that there are circumstantial evidence of direct human-to-human transmission in India, since 33 health workers and hospital visitors had fallen ill after coming in contact with virus-infected patients.

During the outbreak in Bangladesh in 2004, the WHO report said there were strong evidences of human-to-human transmission.

Even in Kerala, a 28-year-old nurse, Lini, who passed away on Tuesday, 22 May, had also contracted the virus while treating such patients.

Prof Ramanan says so far Nipah virus has not shown signs of sustained human-to-human transmission, so the outbreak should die down. He doesn’t rule out a fresh outbreak in the future, though.

We forget that we are all interlinked. Most diseases first emerge in animals. It is only after they’ve gone through them that they travel to humans. Ebola first emerged in Gorillas. Unless we learn from our mistakes, we stop destroying their habitat these viruses will keep emerging.

Prof Ramanan Laxminarayan, CDDEP