

Before the landslide

**Wayanad tragedy points to perils of development
without respecting the regions carrying capacity**

-Amitabh Kant

Years ago, when I was posted in Kerala in my initial few decades of service, Wayanad was an idyllic hill station in the lush western ghats known for its vast tea plantations. I had the opportunity to visit Wayanad several times and was always inspired by the warmth and resilience of the people. The origin point of rivers like the Kabini and Chaliyar, the district had dense forest cover. It is also home to various biological reserves, wildlife sanctuaries and national parks.

However, over the last week Wayanad has been in the news for a devastating landslide that claimed hundreds of precious human lives. The landslide was triggered by a cloudburst that resulted in the loss of several lives, the destruction of homes, and the trapping of people under debris. The landslide that struck Meppadi, Mundakkai Town, and Chooral Mala, resulted in a nearby bridge used to enter Attamala in Mundakkai also collapsing. The disaster has left over 280 people dead and many others missing. While heavy rains triggered the landslide, the unchecked development driven by tourism and quarrying significantly disturbed the fragile topology of the region.

According to climate experts, the landslide was triggered by extremely heavy rainfall caused by the warming of the Arabian Sea. The southeast Arabian Sea is becoming warmer, leading to atmospheric instability above this region, including Kerala. Climate change has caused rain-laden areas with deep clouds to extend southward, resulting in excessive rain. In 2011, the Western Ghats Ecology Expert Panel, demarcated the region as an ecologically sensitive area (ESA). The panel recommended regulating construction, mining, and quarrying activities in the Western Ghats, one of the world's eight hottest biodiversity hotspots.

This recent landslide is a grim reminder of the similar tragedy that struck Kerala's hilly regions in 2019. Despite clear warnings from experts, unchecked construction and tourism-related activities have continued unabated. Wayanad, renowned for its scenic beauty, has become an eco-tourism tourist hotspot, leading to rampant construction activities. This includes the construction of tourist resorts, connecting roads, tunnels, and quarrying activities, without proper assessment of the region's carrying capacity.

Construction of roads and other infrastructure in such regions should be undertaken with scientific precision, keeping in mind the environmental impacts. Unfortunately, the current practices lack these essential precautions, exacerbating the damage caused by landslides. Nearly half of Kerala comprises hills and mountainous regions with slopes exceeding 20 degrees, making these areas particularly prone to landslides during heavy rains. Beyond climate change, it is crucial to evaluate land use changes and development activities in landslide-prone areas. Landslides and flash floods often occur in regions where the impacts of both climate change and human intervention in land use are evident.

A 2022 study on depleting forests in Wayanad revealed that 62% of the district's green cover disappeared between 1950 and 2018, while plantation cover rose by around 1,800%.

The study, published in the International Journal of Environmental Research and Public Health, indicated that around 85% of Wayanad's total area was under forest cover until the 1950s. Now the region is known for its extensive rubber plantations. The landslide was worsened by the presence of rubber trees, which are less effective at holding soil compared to the original dense forest cover.

Mindless construction in vulnerable areas has greatly contributed to such disasters across the country especially in hilly and mountainous zones. Experts have highlighted that extensive construction of roads and culverts in Kerala has not accounted for current rainfall patterns and intensities, relying instead on outdated data. There is a need to consider new risk factors in construction to prevent flash floods, as many structures fail to accommodate river flow, leading to significant destruction. Unscientific construction practices are a major cause of the current devastation.

The Western Ghats have been classified as an ecologically fragile region. Recent research by the Indian Institute of Science divided the 1.6 lakh sq km of Western Ghats into four ecologically sensitive regions (ESR)). Promoting sustainable land management practices, such as reforestation, controlled deforestation, and sustainable agriculture, is crucial to maintaining hillside stability and reducing soil erosion, thereby mitigating the effects of heavy rains.

The last major landslide in Kerala occurred in 2020 when an avalanche crashed down on tea plantation workers in the Kanan Devan Hills of Idukki district, killing 65 people, mostly estate workers. In 2018, devastating floods killed more than 400 people across Kerala, destroying homes, forested areas, and infrastructure. In 2021, dozens died due to multiple landslides and floods in Kerala's Kottayam and Idukki districts. Rain-related incidents such as landslips and flash floods claimed several lives in 2022 as well.

Kerala, once known for its lush greenery and beautiful monsoons, now faces annual climate-related tragedies during these months. Over the past decade, the state has witnessed numerous climate-induced disasters, underscoring the urgent need for climate-resilient infrastructure. The Wayanad tragedy serves as a stark reminder of the delicate balance between nature and human activity. It highlights the dire consequences of neglecting ecological warnings and the pressing need to adopt sustainable development practices to safeguard the environment and the lives that depend on it.

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