

World Environment Day

Land Restoration



AI generated image of a degraded land patch

Refers to the process of halting the degradation or rehabilitating degraded land, typically through activities like reforestation, soil conservation, and the protection of natural processes. A study by IIT Bombay revealed a dramatic rise in soil erosion within the Western Ghats, a world-renowned biodiversity hotspot. The findings show a staggering increase of nearly 94% since 1990. Let us go through what actions can be taken up to restore a patch of degraded Western Ghats.

- **Location:** Tapi and Dang district, Gujarat (northernmost tip of Western Ghats)
- **Importance:** Faces the most severe erosion, with a staggering 119% increase. **Urgency for Restoration:**
- **The high rate of erosion signifies a critical ecological imbalance.**
- **Timely intervention is crucial to prevent further degradation and potential ecosystem collapse.**



Reforestation with local trees:

Since this part of Gujarat has moist deciduous forests, planting native species like teak, haldu, shisham, khai, and axlewood is ideal. These trees can be strategically planted along the edges of different ecosystems (ecotone), on the borders of farms, as well as the barren hill slopes for maximum benefit.



Ground water recharge

The slope gradients of this region present a hydrogeological challenge for groundwater recharge. Steep slopes promote rapid surface runoff, minimizing the infiltration of rainwater into the subsurface and consequently limiting groundwater recharge. However, farmlands & valley bottoms, can be strategically utilized as infiltration zones to capture and redirect surface runoff for recharge.

Minimal human and cattle intervention:

Activities like illegal logging, slash-and-burn farming, & excessive cattle grazing degrades the land. Patrolling can help stop illegal logging, but cameras and artificial intelligence can be used to keep a check on illegal activities. Additionally, educating the locals about the negative effects also helps.



Sustainable farming practices:

Minimal usage of chemical pesticides and weedicides will ensure the integrity of the overall biodiversity and the land. Indigenous organic solutions like *Neemastra*, *Brahmastra* etc., can be used to replace the chemical pesticides.

source: Chinnasamy, Pennan & Honap, Vaishnavi. (2023). Spatiotemporal variations in soil loss across the biodiversity hotspots of Western Ghats Region, India. Journal of Earth System Science. 132. 10.1007/s12040-023-02098-x.