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IIT-I app to map climate risks in key biodiversity areas

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Indore: Indian Institute of Technology, Indore (IIT-I), developed a climate monitoring application to map extreme rain and drought risks across India's key biodiversity areas (KBAs). The application can help policymakers and conservation agencies better protect vulnerable ecosystems.

The tool developed by a research team led by professor Manish Kumar Goyal from the civil engineering department, maps precipitation extremes and drought patterns at the district level. It identifies climate "hotspots" where biodiversity faces heightened stress due to erratic weather patterns.

"Precipitation Extremes and Drought Monitoring Application for Indian key biodiversity areas at district level has been developed to address growing climate concerns. The tool tracks historical precipitation extremes

and drought patterns from 1951 to 2022. By helping understand changing climate trends and supporting evidence-based conservation actions, it marks an important step toward protecting India's biodiversity from climate-related risks," Goyal said.

The findings point to increasing vulnerability of ecosystems such as forests, wetlands and grasslands, where both extreme rain and prolonged dry spells can disrupt habitats, affect species survival and alter ecological balance. Regions like the Western Ghats and the Himalayas are particularly at risk due to rising temperature and human pressure.

Experts said the applica tion has strong practical rel vance, enabling policyma kers and conservation age cies to prioritise interve tions such as wate management, habitat rest ration and climate adapt tion strategies in high-ris zones.

"At IIT-I, we are commi ted to developing researc driven solutions that addre real-world environment challenges. This applicatio reflects our effort to combi scientific research with pra tical tools that support biod versity conservation and cl mate resilience in India, IIT-I director Suhas Josh said.

India has over 600 KBA that are critical for the surv val of unique and endang red species. With climat risks intensifying, the tool expected to aid district-leve planning and strengthen co servation efforts across th country.