

IIT-I DEVELOPS REAL-TIME WETLAND HEALTH MONITOR

Our Staff Reporter

INDORE

Researchers at the Indian Institute of Technology (IIT), Indore, have developed a digital tool that can monitor the health of wetlands in near real-time.

It will also help in detecting pollution and other threats before they cause serious damage. The innovation has been made by Prof Manish Kumar Goyal and research scholar Vijay Jain from the Department of Civil Engineering.

The system uses satellite images and cloud-based computing to monitor key water quality indicators such as excess nutrients, turbidity (cloudiness), and veg-

Benefits of tool

- Real-time monitoring - Quickly detects pollution and algae growth.
- Low-cost - Uses free satellite data and open-

source software.

- User-friendly - Accessible even to NGOs and local communities.
- Early warning system - Helps prevent serious ecological damage.

etation health.

Wetlands play a crucial role in cleaning water, controlling floods, storing carbon, and supporting biodiversity.

Wetlands under pollution threats

Although they cover only 9% of the Earth's surface, they contribute 23% of the world's ecosystem services.

India alone has 15.98 million hectares of wetlands, in-

cluding 93 Ramsar sites, which are under increasing threat from pollution, urbanisation, and climate change.

Wetland monitoring relying on manual water sampling and lab tests is time-consuming.

IIT Indore's new tool solves this by using freely available Sentinel-2 satellite data and cloud computing to automatically calculate four scientific indices

▶ Continued on | P8

Page.No-01

IIT-I develops...

NDCI: Detects chlorophyll and eutrophication

NDTI: Monitors turbidity

NDWI: Tracks freshwater availability

NDMI: Measures vegetation moisture

Together, these indicators provide a complete, up-to-date picture of a wetland's health.

Scalable - Can be used across all wetlands in India.

Director of IIT Indore Prof Suhas Joshi said, "This innovation shows IIT Indore's commitment to using technology for social and environmental good. It empowers communities and authorities to protect vital ecosystems."

Condt.Page-08