

## Virtual Reality Brings Disaster Education to Life in Western Nepal

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In the fragile hills of western Nepal, where landslides are a recurring threat and access to advanced educational tools is limited, a new initiative is transforming how students learn about disasters through the power of Virtual Reality (VR). Schoolchildren in Bajhang and Bajura districts are now experiencing immersive lessons on landslides, without ever leaving their classrooms.

This innovative project, led by Dr. Dhiraj Pradhananga in collaboration with The Small Earth Nepal (SEN) and UNESCO, builds on the foundation laid by the earlier LEVO (Landslide Environmental Virtual Observatories) project<sup>1</sup>. While LEVO generally focuses on forming eco-clubs and raising environmental awareness, the new initiative leaps forward by integrating cutting-edge VR technology into disaster education.

### Learning Through Experience

The project developed detailed virtual tours of landslide-prone areas using high-resolution 360° images and drone footage. These tours allow students to "walk through" landslide sites, observe terrain changes, and understand the causes and consequences of such disasters—all through VR headsets provided to their schools.

Two schools—Thuma Secondary School in Bajura and Sunkuda Secondary School in Bajhang—were selected for the pilot. Workshops were conducted with students from grades 6 to 10, many of whom had never seen or used VR before. The response was overwhelmingly positive.

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<sup>1</sup> The Landslide Environmental Virtual Observatories (LEVO) project, initially launched in 2017, has taken a new and innovative step forward. In partnership with UNESCO, SEN continued the project into 2022–2023 by integrating Virtual Reality (VR) technology to strengthen disaster preparedness in two remote districts of Nepal: Bajhang and Bajura.

"It felt like I was standing right in the middle of the landslide," said one student. "I could see how the land moved and what damage it caused. It made everything real."

Teachers and principals shared their enthusiasm, noting that students were more engaged and retained information better through this interactive method.

### **Technology Meets Community**

The project didn't stop just delivering VR content. It trained teachers and eco-club members to operate the devices and continue using them for future lessons. Each school received a complete VR setup and pre-installed educational content. Importantly, the VR application was designed to work offline, making it ideal for areas with limited internet access.

Beyond landslides, the platform can be expanded to include other educational themes such as climate change, the solar system, and human anatomy, making it a versatile tool for rural education.

### **Challenges and Opportunities**

Introducing VR in remote areas came with its share of challenges. Limited internet connectivity, technical setup issues, and the need for more devices to accommodate all students were some hurdles. However, the project team addressed these by creating offline versions of the content and ensuring hands-on training for local educators.

The initiative also sparked interest among local governments and communities. Stakeholder workshops were held to showcase the technology and discuss its potential for broader disaster preparedness and community awareness.

### **A Model for the Future**

This pilot project offers a glimpse into the future of education in Nepal's remote regions. By combining citizen science, local engagement, and immersive technology, it creates a powerful model for building resilience against natural hazards.

As SEN and UNESCO look ahead, they recommend scaling up the initiative by:

- Providing more VR sets to schools.

- Expanding content to cover other hazards and subjects.
- Engaging parents and communities in the learning process.
- Partnering with universities and educational institutions for content development and research.

In a country where geography often limits access to resources, this project proves that innovation can overcome barriers. With a headset and a well-designed virtual tour, students in Nepal are not just learning about disasters—they're experiencing them, understanding them, and preparing to face them with knowledge and confidence.