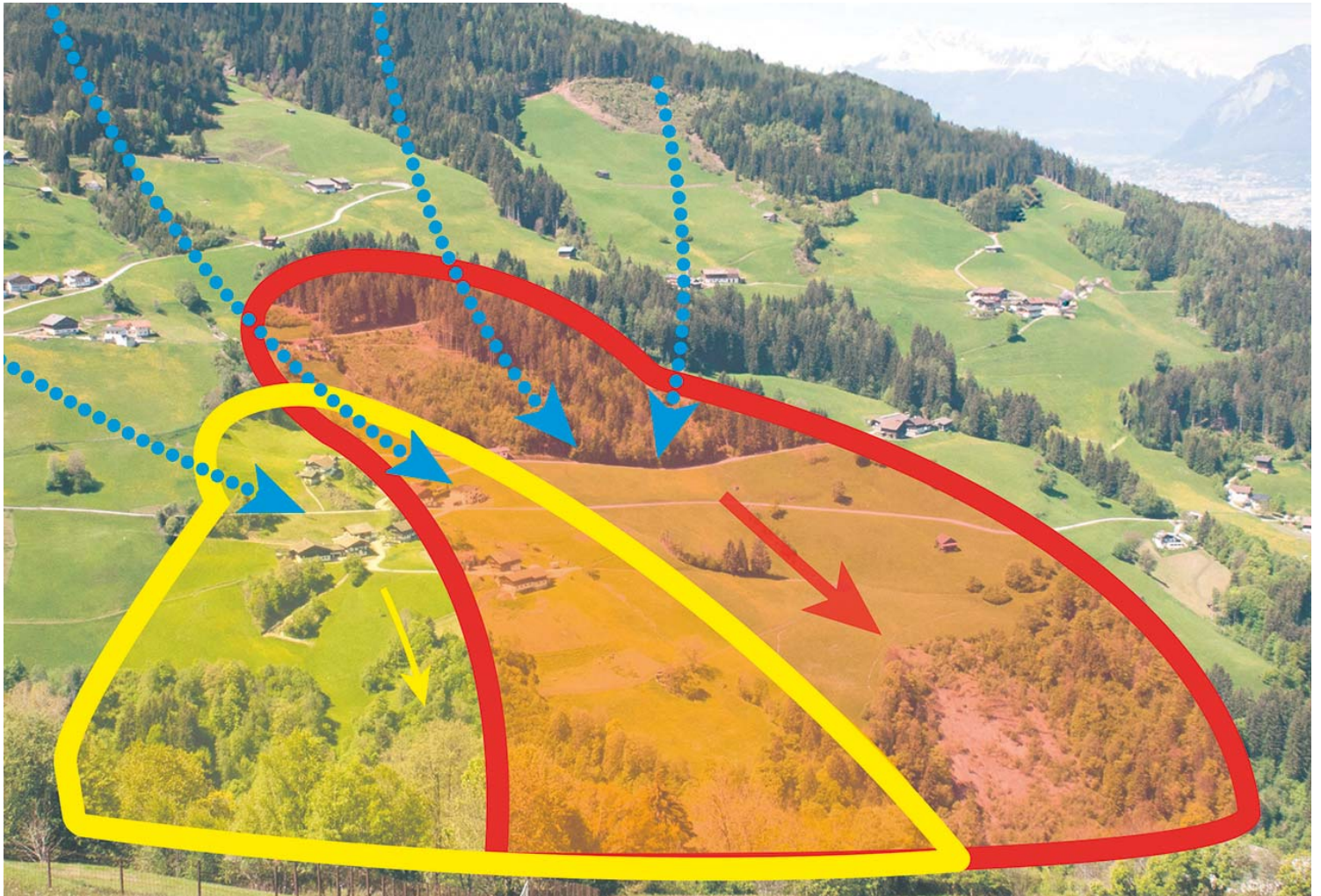
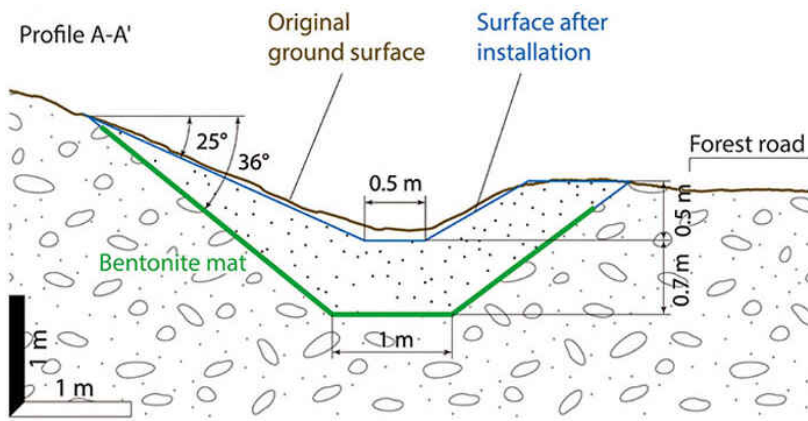


# Bentofix® Green - Reducing landslides

The future of sustainable sealing

- **Project name**  
OPERANDUM research and innovation programme at Vögelsberg, Tyrol
- **Product**  
Bentofix® Green





## Ecological challenges at the Tyrolean Vögelsberg

In the picturesque Vögelsberg region of Tyrol, large-scale slope failures are a constant threat. Often caused by hydro-meteorological influences, these natural hazards require innovative and sustainable solutions. The EU project OPERANDUM aims to research effective and environmentally friendly measures to reduce landslides.

### Naue Bentofix® Green: Innovation meets conservation

Naue Bentofix® Green was introduced in the market town of Wattens am Vögelsberg as an alternative to temporary plastic solutions. This bentonite mat combines environmental sustainability with efficiency and is partially biodegradable. Its main components are natural bentonite and biodegradable carrier and cover layers.

The innovative design of Bentofix® Green consists of a mineral sealing layer of highly effective sodium bentonite embedded in stretchable, biodegradable textile layers. The special needling technique of the mat enables high shear force absorption. After installation, the mat is covered with a protective layer of topsoil, which optimises the swelling behaviour of the bentonite and protects it from external loads.

### Wide range of applications and clear benefits

Bentofix® Green can be used for various applications, from sealing riverbanks to securing ditches and trenches. Compared to traditional methods such as compacted loam or clay layers, it offers significant advantages: easier installation, less susceptibility to faults, and material and cost savings. An outstanding feature is the „self-healing“ ability of bentonite: dry cracks close automatically when re-wetted.

### Sustainability and functionality in harmony

The Bentofix® Green waterproofing membrane is specifically designed for long-term applications where natural, mineral-based waterproofing is required. The biodegradable components of the mat decompose over time without harming the environment. This makes it particularly attractive for environmentally sensitive areas.

### Successful use in practice

Naue Bentofix® Green was installed in a critical water-loss section of the Vögelerbach stream. First, extensive soil testing was carried out. After excavating the creek and embankments, the mat was carefully laid, with bentonite paste at the overlaps to ensure a tight bond. Once the work was complete, the area was recultivated with the original stream substrate.

### Convincing results through targeted monitoring

The effectiveness of Bentofix® Green was monitored using geoelectric measurements and terrestrial laser scanning. The results showed a significant reduction in electrical resistance above the mat, indicating increased water content and therefore successful sealing. Below the mat, the resistance remained constant, demonstrating the tightness of the mat.

## Conclusion

Bentofix® Green is an innovative and environmentally friendly solution for sealing water leaks. Its effectiveness and environmental sustainability have been proven in practice, making it an ideal choice for projects that require sustainable and nature-based solutions.

## Literature

Thomas Zieher, Jan Pfeiffer, Veronika Lechner, Kent von Maubeuge, Helge Hoyme, Helmut Hochreiter, Daniela Engl (2022): Einsatz einer Bentonitmatte mit biologisch abbaubaren Komponenten für die Abdichtung von Gerinnebetten (Title translation: Use of a geosynthetic clay liner with biodegradable components for the sealing of artificial creeks), in: Zeitschrift für Wildbach-, Lawinen-, Erosions- und Steinschlagschutz, Vol. 190, pp. 168 - 179.

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