



# VEGETATED BIODEGRADABLE EROSION CONTROL MATS AND BLANKETS

SWB3



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ADDRESSED  
HAZARDSPROTECTED CRITICAL  
INFRASTRUCTURE

## ▼ Main components

- **Biodegradable Composition:** made from organic materials like jute, coir, straw, and hemp, which break down naturally over time without leaving long-lasting waste.
- **Vegetation Support:** provides a stable environment for plant growth, helping establish roots that further stabilise the soil. **Soil Protection:** Protects soil from wind and water erosion, reducing soil displacement and promoting stabilisation.
- **Ease of Installation:** simple to deploy across various terrains with minimal disturbance, making them easy to apply in large-scale projects.
- **Versatility:** suitable for diverse environments such as construction sites, slopes, riverbanks, and reforestation areas.

## ▼ Primary functions and key services

- **Erosion Prevention:** provides immediate ground cover that stabilises soil on slopes, riverbanks, or construction sites, preventing erosion and protecting infrastructure from damage due to soil displacement.
- **Slope Stabilisation:** reinforces vulnerable slopes and embankments, reducing the risk of surface erosion or shallow soil slippage that could impact roads, buildings, or utilities.
- **Surface Runoff Control:** promotes water infiltration and reduces surface runoff, helping prevent flooding and water-related damage to nearby infrastructure.
- **Temporary Structural Support:** provides mechanical protection to slopes and embankments during critical periods, such as initial vegetation establishment or extreme weather events.
- **Water Management and Sediment Control:** enhances water infiltration and controls sediment flow, improving water quality and reducing sediment-related damage to infrastructure.

## ▶▶ What is it?

**Biodegradable and vegetated erosion control blankets/mats** are a nature-based solution designed to stabilise soil, reduce erosion, and promote vegetation growth in areas vulnerable to soil displacement, such as slopes, riverbanks, and construction sites. Made from organic materials like jute, straw, and coconut fibres, they provide immediate ground cover, protect the soil from wind and water erosion, and support plant establishment. As plants grow, their roots further stabilise the soil, offering long-term protection. However, there are limitations in germination rates and success due to light competition, deficiencies in appropriate attachments of mats with integrated seed components to the soil surface or simply limited seed fertility due to long-term storage. These mats are biodegradable, making them an eco-friendly alternative that naturally integrates with the environment without leaving long-term waste. Unlike meshes, mats provide denser coverage and a more solid barrier for erosion control. Combination with plant establishment is therefore required to secure long-term erosion control effects.



Coconut Erosion Control Blankets (and coir-logs), Erzeni River, Albania, BRIGAD Project. Image Credit: [Eriona Canga], [2019]. Used with permission.

## Challenges this NbS addresses

- **Erosion** - prevention/reduction of sediment displacement
- **Flooding** - Prevention/reduction of bank damage due to higher water levels
- **Soil Degradation** - prevention/reduction;
- **Climate change** - adaptation

## Environmental impacts (EU taxonomy)

- Climate change mitigation
- Climate change adaptation
- Sustainable use and protection of water and marine resources
- Transition to a circular economy
- Pollution prevention and control
- Protection and restoration of biodiversity and ecosystems.

## Ecosystem services

- ▶ **Biodiversity Support:** provides habitat for various plant and animal species, promoting biodiversity in areas where vegetation is established.
- ▶ **Soil Fertility:** contributes to soil regeneration by improving organic matter and nutrient cycling, enhancing soil fertility.
- ▶ **Microclimate Regulation:** creates cooler, more stable microclimates by reducing evaporation and providing shade, benefiting surrounding vegetation and wildlife.
- ▶ **Carbon Sequestration:** contributes to carbon storage through plant growth, supporting climate change mitigation efforts.

## References

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Kalibová, J., Jačka, L., & Petřů, J. (2016). The effectiveness of jute and coir blankets for erosion control in different field and laboratory conditions. *Solid Earth*, 7(2), 469-479.