

# Mitigasi Longsor Berbasis Komunitas melalui Penerapan Metode *Bioengineering* Rumput Vetiver di Desa Petir

## (Community-Based Landslide Mitigation through the Implementation of Vetiver Grass Bioengineering Method in Petir Village)

Heriansyah Putra<sup>1\*</sup>, Sutoyo<sup>1</sup>, Zainab Ramadhanis<sup>1</sup>, Apriadi<sup>1</sup>, Anisa Dwi Utami<sup>2</sup>, Avrill Khayyira<sup>1</sup>, Windy D Aryanti<sup>1</sup>, Fitri W Bilqist<sup>2</sup>, Meindika R Praditya<sup>1</sup>, Muhammad F Faiq<sup>1</sup>, Muhammad A I Munawar<sup>1</sup>, Jose T Hutapea<sup>1</sup>, Muhammad Athourrohman<sup>1</sup>

<sup>1</sup> Sekolah Teknik, IPB University, Bogor, Jawa Barat, Indonesia 16680

<sup>2</sup> Fakultas Ekonomi dan Manajemen, IPB University, Bogor, Jawa Barat, Indonesia 16680

\*Penulis Korespondensi: heriansyahptr@apps.ipb.ac.id

### ABSTRAK

Desa Petir, Kecamatan Dramaga, Kabupaten Bogor merupakan salah satu wilayah dengan tingkat kerawanan tanah longsor yang tinggi. Kondisi topografi yang curam, curah hujan tinggi, serta sejarah kejadian longsor yang telah menimbulkan korban jiwa menjadi alasan diperlukan mitigasi yang efektif dan berkelanjutan. Kegiatan pengabdian ini bertujuan untuk memperkuat upaya mitigasi longsor berbasis komunitas melalui penerapan metode *soil bioengineering* menggunakan tanaman rumput vetiver (*Vetiveria zizanioides*). Kegiatan dilaksanakan pada Juni sampai Oktober 2025 yang mencakup empat tahapan, yaitu pengukuran kemiringan lereng, sosialisasi bencana longsor dan metode *bioengineering*, penanaman vetiver, penetapan daerah rawan. Hasil pengukuran di RW 03 dan RW 04 mengidentifikasi kemiringan lereng  $17,7^{\circ}$ – $35^{\circ}$ , yang tergolong sesuai untuk penanaman vetiver berdasarkan pedoman teknis PUPR (2012). Dua titik di RW 03 dan RW 04 Desa Petir dijadikan sebagai prioritas penanaman rumput vetiver karena letaknya yang dekat dengan pemukiman warga. Hasil kegiatan menunjukkan bahwa metode *bioengineering* berbasis vegetasi dapat diaplikasikan secara di wilayah tersebut. Selain membentuk barisan vegetasi penguat lereng, kegiatan ini juga meningkatkan kapasitas masyarakat dalam memahami serta melaksanakan mitigasi bencana yang ramah lingkungan.

Kata kunci: komunitas, longsor, mitigasi bencana, rumput vetiver, *soil bioengineering*

### ABSTRACT

Petir Village, Dramaga District, Bogor Regency, is one of the areas with a high level of landslide susceptibility. The steep topography, high rainfall, and history of landslide incidents that have caused casualties indicate the need for effective and sustainable mitigation efforts. This community service activity aims to strengthen community-based landslide mitigation through the application of the soil bioengineering method using vetiver grass (*Vetiveria zizanioides*). The program was conducted from June to October 2025 and consisted of four main stages: slope gradient measurement, landslide and bioengineering method socialization, vetiver planting, and identification of hazard-prone areas. Measurements in RW 03 and RW 04 identified slope gradients ranging from  $17.7^{\circ}$  to  $35^{\circ}$ , which are considered suitable for vetiver planting according to the PUPR Technical Guidelines (2012). Two points in RW 03 and RW 04 were prioritized for vetiver planting due to their proximity to residential areas. The results show that vegetation-based bioengineering methods can be effectively applied in the area. In addition to forming vegetative slope reinforcements, this activity also enhanced community capacity in understanding and implementing environmentally friendly disaster mitigation practices.

Keywords: community, disaster mitigation, landslide, soil bioengineering, vetiver grass