

## **PENGARUH PERUBAHAN KERAPATAN VEGETASI TERHADAP KERAWANAN LONGSOR DI SUB DAS NGRANCAH, KULON PROGO**

oleh:

Isna Wahyu Khomisetun<sup>1</sup>  
Dr. Emma Soraya, S. Hut., M. For.<sup>2</sup>  
Djoko Soeprijadi, S. Hut., M.Cs.<sup>2</sup>

### **INTISARI**

Kejadian longsor masih terus terjadi di Kabupaten Kulon Progo walaupun telah dilakukan kegiatan rehabilitasi lahan secara vegetatif. Kondisi ini memperlihatkan bahwa pada daerah rawan longsor perlu strategi rehabilitasi yang tepat. Tujuan penelitian ini adalah untuk mengetahui perubahan kerapatan vegetasi dan pengaruhnya terhadap kerawanan longsor di Sub DAS Ngrancah.

Pengaruh perubahan kerapatan vegetasi terhadap kejadian longsor ditentukan berdasarkan nilai *frequency ratio* dan *landslide susceptibility index* dari kejadian longsor yang terjadi dan diagregasi menurut faktor kelerengan, geologi, jenis tanah, curah hujan, jarak dari jalan, jarak dari sungai, tutupan lahan, dan perubahan kerapatan vegetasi. Faktor kerapatan vegetasi diidentifikasi melalui penginderaan jauh (PJ), sedangkan faktor lainnya dilakukan berdasarkan data sekunder. Efek pengaruh dari faktor-faktor ini ditentukan menggunakan *rate curve* dari tiap faktor tersebut.

Hasil penelitian menunjukkan bahwa di Sub DAS Ngrancah Tahun 2009 terdapat tiga kelas kerapatan yaitu tak bervegetasi (16,6%), jarang (81,5%), dan sedang (1,9%). Sedangkan pada tahun 2017 terdapat empat kelas kerapatan yaitu tak bervegetasi (8,1%), jarang (12,2%), sedang (62,6%), dan tinggi (17,1%) dengan perubahan dominan dari jarang ke sedang. *Rate curve* dari tiap faktor memperlihatkan perubahan kerapatan vegetasi memiliki pengaruh yang lebih signifikan dibandingkan faktor lain kecuali penutupan lahan aktual.

**Kata Kunci:** Penginderaan jauh, Landsat, *Frequency ratio*, GIS, Analisis dampak

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<sup>1</sup> Mahasiswa Minat Manajemen Hutan, Fakultas Kehutanan, Universitas Gadjah Mada

<sup>2</sup> Dosen Departemen Manajemen Hutan, Fakultas Kehutanan, Universitas Gadjah Mada

## **THE INFLUENCE OF VEGETATION DENSITY CHANGES ON LANDSLIDE SUSCEPTIBILITY IN NGRANCAH SUB WATERSHED, KULON PROGO**

by:

Isna Wahyu Khomisatu<sup>1</sup>

Dr. Emma Soraya, S. Hut., M. For.<sup>2</sup>

Djoko Soeprijadi, S. Hut., M.Cs.<sup>2</sup>

### **ABSTRACT**

Kulon Progo has high landslide susceptibility. Kulon Progo Regency Government has conducted rehabilitation activities through reboisation activities, but landslides still occurred especially in Ngrancah Sub Watershed. The evaluation is needed to assess the effectiveness of reboisation in preventing landslide occurrence. Therefore, the study aims to investigate vegetation density changes and its influence to prediction model of landslide events in Ngrancah Sub Watershed.

Vegetation density changes and the effect of vegetation density changes in prediction model of landslide at Ngrancah Sub Watershed have been evaluated using remote sensing and geographic information system (GIS). Vegetation density change was analyzed using multitemporal Landsat imageries in 2009 and 2017. The factors analysed that influence landslide occurrence were: slope, geology, soil, precipitation, distance from drainage, distance from road, landcover, and vegetation density change. Landslide hazardous areas were analyzed and mapped using the landslide occurrence factors employing the probability frequency ratio method using the all factors. To assess the effect of these factors, each factor was excluded from the analysis, and its effect verified using landslide location data.

The results showed that the vegetation density change in Ngrancah sub watershed experienced a dynamic change. In 2009 there were three classes of vegetation density i.e. non-vegetation (16,6%), low (81,5%), and medium (1,9%). While in 2017 there are four density classes that are not vegetated (8,1%), low (12,2%), medium (62,6%), and high (17,1%) which is the change dominan is low to medium. Vegetation density change more affect landslide in Ngrancah Sub Watershed compared to other factors except land cover.

**Key word:** Remote sensing, Landsat, Frequency ratio, GIS, Effect analysis

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<sup>1</sup> Student of Forest Management, Faculty of Forestry, Gadjah Mada University

<sup>2</sup> Lecturer of Forest Management, Faculty of Forestry, Gadjah Mada University