

## **ECOSYSTEM-BASED COMMUNITY ADAPTATION AND MITIGATION STRATEGY FOR DISASTER RISK REDUCTION IN THE UPSTREAM MERAWU WATERSHED, BANJARNEGARA REGENCY**

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### **ABSTRACT**

Forest conversion to agricultural land in the upstream area of Merawu watershed has changed the ecosystem composition and reduced the land stability, causing degraded watershed conditions. Tamansari and Penanggungan hamlets are prone to erosion, landslides and environmental pollution from intensive farming. Potatoes, cabbage, carrots, and chili are the main commodities to cultivate. Planting on the steep slope, intensive land mechanization and high intensity of pesticide spraying cause the area to be prone to ecosystem disasters such as erosion, landslides and environmental pollution. This study aims to observe the local's perceptions of ecosystem disasters, analyse the community adaptation and mitigation strategies, and assess determinant factors that influence adaptation strategies. Community perceptions is tested using Mann-Whitney test, adaptation and mitigation strategies describe qualitatively, and determinant factors on adaptation using logistic regression. The results showed that the upper Merawu watershed community's perceptions varied greatly by knowledge and attitudes of the community. Knowledge is affected by the intervention of PT. Indonesia Power and Field Extension Officer. Community attitudes are influenced by the type of land use and commodities planted. Adaptation actions practiced by the community include water drainage cleaning, application of intercropping, crop rotation and agroforestry. Mitigation actions carried out by the community include the construction of drainage channels, terraces, embankments, and planting of wood plants (structural mitigation) while mitigation carried out by the government is more towards non-structural mitigation such as socialization and training, planting joint seedlings and the establishment of disaster resilient village (i.e., Destanta). Determinant factors on adaptation strategy to erosion are land area and household income, while to landslides are assets and locations.

Keywords: Disaster, Perception, Adaptation, Mitigation, Watershed

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