

## **ABSTRACT**

*Indonesia often experiences natural disasters, particularly floods in Panyabungan Mandailing Natal District, facing significant challenges in safeguarding the safety and well-being of its inhabitants. The high vulnerability to natural disasters and the lack of accurate mapping of flood-prone areas pose obstacles to disaster management. However, through the utilization of data mining technology and the K-Means algorithm, this study offers a potential solution to effectively identify flood-prone regions. Through clustering, this software will assist authorities in mitigating flood-related losses. By mapping vulnerable areas and clustering them into three levels of vulnerability, disaster response can be conducted more swiftly and efficiently. This research aims to support disaster mitigation efforts and enhance services for the community in Panyabungan. Thus, this study also provides iterative outcomes, consisting of 3 iterations in 2019, 4 iterations in 2020, 3 iterations in 2021, and 6 iterations in 2022. The final results of these iterations can serve as a reference to determine highly vulnerable, moderately vulnerable, and not vulnerable areas to flood disasters within the Panyabungan Subdistrict.*

*Keywords: Data Mining, Clustering, Flood*