

Social Media Data Analytics for Understanding Narratives and Concerns of Communities in Post-Disaster Situation

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After the August and September 2018 devastating West Nusa Tenggara and Central Sulawesi earthquakes and tsunami, the Indonesian Ministry of Social Affairs conducted field surveys for the need assessment of communities. Based on the surveys, the Government of Indonesia published a need assessment catalog, called Displacement Tracking Matrix (DTM), to portray the status and needs of the survivors in disaster shelters. The DTM initiative has been well received, but there are some shortcomings. First, the field surveys were conducted almost two months after the West Nusa Tenggara earthquakes and almost one month after Central Sulawesi disasters. In addition, the DTM did not reflect the detailed emotional and social concerns of the survivors and pro-social behaviors of surrounding communities. Considering the high consumption trend of social media in Indonesia, it can be a critical source to obtain quick, easy, personal, and location-specific data of concerns and needs of communities after the disaster. This study aims to use social media data to assess the needs and concerns of the affected communities after the disaster to enhance the relief operation. Using narrative analysis methodology based on machine learning and natural language processing, we interpret the tweets of local communities related to both disasters. This study found that the concerns related to feelings and social supports were prominently immense than the physical and material needs in both disasters. The behavioral reactions to disasters did not occur only in disaster-stricken areas. These reactions also spread and amplified the impacts far beyond the

immediate victims and surrounding communities. These behaviors addressed the willingness of people to be more empathetic, spread benevolence, and contribute to a philanthropic demeanor in traumatic events such as natural disasters.