

Biodiversity - 2015: Flood hazard mapping and assessment based on community perception in remote area of eastern Indonesia (A case study in west Malaka sun district of belu regency east nusa tenggara province, Indonesia)

Apolonia Diana Sherly da Costa

University of Jena, Germany, Email: noidacosta_baucau@yahoo.co.id

Abstract

Community perception has its contribution in the flood disaster management process. This research aimed at producing the flood event map according to the community perception. The collected data is based on a participatory approach. The sampling methods applied in this study were purposive sampling and stratified sampling. The flood data was obtained through interview with 60 respondents based on research questionnaire and Focus Group Discussion (FGD). The results of interview from respondents and FGD have shown similar flood data on flood frequency, flood extent and water depth. The frequency of flooding occurred from 1939, 1959, 1975, 1979 and 1999 until 2012. Every time flood hits the study area, all sites were inundated. While, the average duration of inundation in the study areas (Lasaen, Umatoos and Fafoe) was started from 24 hours (1day) it's minimum and up to three weeks or up to 1 month evenly it's maximum. The water depth of three villages varies between 60 cm and 300 cm. Thus, possess a direct impact on people daily needs with losses reaching more than Rp. 1,000,000,00 and Rp. 200,000,00 it's less minimum.

Flood is known as one of disasters that annually or eventually occurred in the world. Floods are one of the most disastrous phenomena occurring all over the world (Kinosita, 1983). As added by APFM

(2008) divides four types of flood and the second type of flood is river flood which occurs as the impact of river run-off volume exceeds local flow capacities. This paper is going to discuss the river flood which has been impacted by the flood event due to the overflow of Benanain River which is located in Belu. The evidence of flood disaster has affected the livelihood of people life, live and economic damages of the people in Belu Regency, East Nusa Tenggara Province (da Costa, 2013). Andriyani et.,al (2010) describes the floods represent the part of environmental problems of physical on the surface of earth resulting loss and can be interpreted an situation where irrigate river abundance, suffusing area of around it until certain deepness till generate loss. As asserted by IFRC (2010) that the impact of flooding can include destruction of housing, crops, cattle and people. Flooding causes few deaths, instead, widespread and long-lasting detrimental effects include mass homelessness, disruption of communications and health care systems, and heavy loss of business, livestock, crops, and grain, particularly in densely-populated, low lying areas (Medscape, 2005). Floods can lead to the loss of human life and other (non-lethal) human health effects (Ohi and Tapsell, 2000; WHO, 2002; Hajat et al., 2003) in (Ezemonye and Emeribe, 2011). The indirect impact of flooding is on the health infrastructures and all lifeline systems can be massive and can result in food shortages and the interruption of

basic public health services (WHO, 2013). According to Medscape (2005), Global statistics show that floods are the most frequently recorded destructive events, accounting for about 30 percent of the world's disasters each year where the frequency of floods is increasing faster than in any other type of disaster. The greatest damage of flood disaster worldwide affected the greatest number of people. Flood hazard index in each city / country of Indonesia has 3 different scores and class, particularly rural flood as happened in the study area. As supposed by BNPB (2011), From 23 Provinces/Regions of the index of prone single hazard that vulnerable to floods by 2011, Belu Regency gets a high class of flood's hazard with it's score 54, and sits 21 of the national ranking. To obtain this, the discussion was done through flood characteristics, namely; flood frequency, flood distributions, flood duration and waterdepth. This paper is going to discuss two sub objectives of flood event as the first objective of the study that is (1). To produce flood event map by identifying flood characteristics, i.e., Flood frequency, Flood extent, flood duration and waterdepth and; (2). To identify the flood impact and the flood consequence.

The flood frequency in the study area has similar time period that occurred in 1939, 1959, 1975, and 1999 and until 2012 the present year. All sites in the study area are inundated or flooded as the consequences of flood. The flood characteristics i.e., flood frequency, flood extent and waterdepth data gathered by interview are similar with FGD's result. The duration of inundation in Lasaen and Fafoe Villages based on FGD are similar while Umatoos Village is not. The duration of inundation in these villages are from minimum (0-7 days) until (14-21 days) it's maximum. While, the duration of inundation in Fafoe Village is started from 1 week and lasted at 1 month maximum. Whereas, based on Interview, the flood duration in three villages

are similar which started from (0-7 days) until more than (>15days). For waterdepth in Lasaen and Umatoos Villages have same zone depth variation which ranged from the lowest (0-50cm) until the deepest (251-300cm). The impact of flood in three Villages (i.e., Lasaen, Umatoos and Fafoe) is on economy in term of income and consequences of floods. On economy, the respondent's income started with the lowest, medium and the highest levels.

This work is partly presented at [4th International Conference on Biodiversity](#) June 15-17, 2015 Las Vegas, USA

4th International Conference on Biodiversity
June 15-17, 2015 Las Vegas, USA