

INTISARI

Bencana banjir bandang yang melanda Kabupaten Seram Bagian Barat, Provinsi Maluku paling parah terjadi di Dusun Nasiri, Dusun Mange-mange, dan Dusun Hatamanu. Dari data BPBD tercatat 5 orang meninggal, 1.200 jiwa mengungsi, dan 154 rumah rusak berat. Melihat kondisi yang ada, perlu dilakukan penelitian yang bertujuan untuk merancang jalur evakuasi, mengetahui kondisi eksisting jaringan jalan serta langkah perbaikan, menguji material lokal yang akan digunakan sebagai bahan perkerasan, dan merancang tebal perkerasan jalan yang paling efektif.

Metode yang digunakan diawali dengan survei lapangan untuk mengetahui kondisi jaringan jalan dari pusat kabupaten setempat menuju lokasi bencana dan dipetakan dengan menggunakan *software* arcGis. Selanjutnya uji laboratorium dilaksanakan di Laboratorium Transportasi, Fakultas Teknik, Universitas Gadjah Mada, Yogyakarta dengan menggunakan buku panduan dari Kementerian Pekerjaan Umum, Direktorat Jenderal Bina Marga, diawali dengan uji material lokal kemudian dilanjutkan dengan uji laboratorium metode *Marshall Immersion* dengan menggunakan campuran *Asphalt Concrete Wearing Course (AC-WC)*.

Penelitian ini menghasilkan beberapa peta dan pengujian di laboratorium menghasilkan kelayakan material. Peta yang dihasilkan yaitu peta daerah terdampak bencana, peta jalur evakuasi, dan peta penyaluran bantuan. Dari hasil uji laboratorium didapatkan bahwa spesifikasi campuran AC-WC bergradasi halus dengan kadar aspal 5,44% tidak dapat digunakan dalam perencanaan campuran. Untuk mendapatkan perkerasan jalan yang sesuai dengan persyaratan, maka perlu penggantian atau memodifikasi material agar lebih kedap terhadap air. Sehingga material dapat digunakan sebagai penyusun struktur perkerasan dengan spesifikasi tebal minimum berdasarkan analisis komponen yang harus dicapai sebesar 5 cm untuk lapis permukaan (Laston), 20 cm untuk lapis pondasi (batu pecah kls C), dan 10 cm untuk lapis pondasi bawah (pasir batu kls C). Namun apabila, material tersebut tetap akan digunakan tanpa perbaikan mutu, maka perkerasan tersebut akan cepat rusak karena lemahnya ikatan antara aspal dengan agregat yang dipengaruhi oleh air yang merendam perkerasan jalan tersebut.

Kata kunci: banjir bandang, jaringan jalan, perkerasan, jalur evakuasi, uji Marshall

ABSTRACT

The most severe flood disaster which hit West Seram regency, Maluku province Indonesia occurred in the district of West Seram includes the Village Nasiri, Luhu Village, Village Huamual. From the data recorded BPBDs there are 5 people died, 1,200 people displaced, and 154 homes were severely damaged due to flash floods that occurred. Looking at the existing conditions, research is needed which aims to determine the existing condition of the road network and road network improvement measures, test of the condition of local material which is used as pavement, and design the most effective pavement.

This study used a method which began with a field survey to know the condition of the road network from the central of regency to disaster area which was mapped with arcGis software. Then, laboratory test was carried out in the Laboratory of Transportation, Master in System and Transport Engineering, Faculty of Engineering, Gadjah Mada University, Yogyakarta by using the manual of the Ministry of Public Works, Directorate General of Highways. Laboratory tests was begun with an aggregate test followed by Marshall Immersion method laboratory tests using a mixture of Asphalt Concrete Wearing Course (AC-WC).

This research produced several maps using ArcGIS software and laboratory tests resulted about the feasibility of local materials which will be used in the improvement of the road network. Some maps which were generated were disaster affected areas maps, evacuation route maps, and the distribution of logistical aid maps, medical, and paramedics. The results of laboratory tests showed that the specifications of the AC-WC mixture of finely graded using asphalt content of 5.44% could not be used in the mix design. To obtain pavement which refers to existing terms to reach the age of planning, requiring replacement gradation of material pavement or modified the material and asphalt so it will be much impermeable. Modification of the material and asphalt must first be retested in the laboratory. So local materials can be used as a constituent of the pavement structure with a minimum thickness specification was based on the analysis of the components which should be reached by 5 cm for the surface layer by using HMA, 20 cm for base course using crushed stone, and 10 cm for sub-base layer by using sand stone. However, if, local materials would still be used without any improvement in the quality of the material and asphalt, so pavement will be broken because of the weakness bond between the asphalt and the aggregate which is affected by water that soaked the pavement.

Keywords: flood, roads network, pavement, evacuation routes, Marshall test