

Verkehrsmanagementstrategien für Großschadensereignisse (Fallstudie Indonesien)

Kurzfassung der Master-Thesis von Yessika Dirgantari

Traffic Management in Disasters (Case Study Indonesia)

Disaster happens if hazard disrupts a community system and caused human losses, leaves serious damage on the ecosystem and destroys the environment. The occurrence of hazard can not be scheduled, however losses caused by disaster can be minimized or avoided by using a certain process called Disaster Management.

This study investigates the relationship between Traffic Management and Disaster Management. City of Banda Aceh is taken as a case study area, since the city was totally damage because of Tsunami Disaster in 2004. This study developed Traffic Management strategies in case of Tsunami. Methodology using in this study refers to the general Traffic Management Planning Process that is combined with functions of Disaster Management. Tsunami counts as natural hazard with specific characteristic that also considered in this study. Banda Aceh is vulnerable to Tsunami disaster due to the location on the edge of Eurasian plate and Indian-Australian plate. This means, tsunami waves will struck Banda Aceh in minutes.

As a part of Disaster Mitigation and Disaster Preparedness activities, several actions have been taken in order to minimize the effect of a disaster. Examples are the reconstruction of Escape Facilities (Escape Hills and Escape Buildings) and the installation of Tsunami Early Warning System in Indian Ocean. These efforts on reducing losses however will perform best if supported by a proper management. Here, the function of Traffic Management to support Disaster Management activities is analyzed and demonstrated in detail.

Goals and Objectives of Traffic Management in case of Tsunami are produced by combining both aims of Traffic Management and Disaster Management. Important is to identify Disaster Management activities that need transport. Experiences in Tsunami Disaster 2004 are considered in this study. Traffic Management Strategies are developed considering the classification of transport and traffic problems in Tsunami Disaster situation. Traffic Management measures are developed and promoted against transport and traffic problems that might occur in case of Tsunami. The proposed Traffic Management measures are classified into pro-active and re-active measures.

Pro-active measures are measures situated in pre-disaster phase. Relevant to the pre-disaster stages in Disaster Management cycle, pro-active traffic management measures also focus its activities more in planning and the establishment of appropriate policies. Pro-active traffic management measures also include the providing information on evacuation, the providing means of transportation and to establish an agreement with the fuel supplier to ensure the availability of fuel during disaster. The aim of Traffic Management itself is more clear during evacuation in pre-disaster phase. Here, Traffic Management will ensure the safe movement of evacuees to a safer area, e.g. Escape hill, Escape building, etc.

Re-active measures are measures situated in post-disaster phase. Here, the role of Traffic Management is crucial. The main issue in this phase, especially in disaster response stage, is about the well-being of disaster victims. Traffic Management will support activities in disaster response stage that require transport. Objectives of Traffic Management, to *avoid traffic*, to *shift traffic* and to *control traffic* are applied into re-active Traffic Management measures in

case of Tsunami. Re-active Traffic Management measures include prioritization of traffic flow, the providing of alternative routes, etc.

The proposed Traffic Management measures are implemented into a Traffic Management Scenario in the case study area to evaluate the efficiency of them. The proposed Traffic Management measures are implemented into a scenario in two examining areas. The first examining area represents the most critical area, which is densely populated. The second examining area however is less demanding.

It is demonstrated that the safety of the population of Banda Aceh can be secured by implementing the proposed Traffic Management measures in case of Tsunami.

Disaster Management plays its role more in pro-active Traffic Management measures in case of tsunami disaster. In contrast, the role of Traffic Management is more crucial in Disaster Management operational activities. However, the successful of the proposed Traffic Management also depends on the available infrastructure.