dLOGIS: Disaster Logistics Information System

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Abstract. There are three timing of disaster mitigation which is pre-disaster, emergency response and post-disaster. All of those is important in disaster mitigation, but emergency response is important when we are talking about time. Emergency response has limited time when we should give help. Rapid assessment of kind of logistic, the number of survivors, number children and old people, their gender and also for disable person. It should be done in emergency response time. Therefore we make a mobile application for logistics management system. The name of application is dLOGIS, i.e. Disaster Logistics Information System. The application is based on Android system for mobile phone. Otherwise there is also website version. The website version is for maintenance, data input and registration. So the people or government can use it directly when there is a disaster. After login in dLOGIS, there is five main menus. The first main menu shows disaster information, refugees conditions, logistics needed, available logistics stock and already accepted logistics. In the second menu is used for entering survivors data. The field coordinator can enter survivors data based on the rapid assessment in disaster location. The third menu is used for entering kind of logistic. Number and kind of logistics are based on the BNPB needed standard for the survivor. The fourth menu displays the logistics stock available in field coordinator. And the last menu displays the logistics help that already accepted and sent by donation. By using this application when a disaster happened, field coordinator or local government can use maintenance distribution of logistics base on their needs. Also for donor people who will give help to survivor, they can give logistics with the corresponding of survivor needs.

1. Introduction

Nowadays, governments and humanitarian organization have coordinated the aids from the donor to victims of the disaster. The assistance provided should match the needs of disaster victims. The kind of assistance is in the form of food, clothing, home or special needs for the disabled. Some researcher has made a disaster management system \cite{1}–\cite{3}, web-based system for disaster logistics \cite{4} and also logistics system during or post emergency response \cite{5}–\cite{9}. dLOGIS (Disaster Logistics Information System) is made base on the experience so far, that the assistance provided by the community or community organizations does not meet the needs of the refugees. For instance, at the time of landslide disaster in Banjarnegara, the community gave aid in the form of used-clothing, whereas many other needs, such as blankets and baby diapers. Also at the time of the eruption of Merapi
volcano, the number of fast food in Boyolali was abundant, but at that time the need was clothing. Therefore, a disaster logistics management system is needed that can regulate the need and willingness of assistance for the refugees. With this dLOGIS system can facilitate government and community organizations in providing appropriate assistance for the refugees.

2. Method
We have created an Android-based dLOGIS application. Hopefully, this application can be used by people who coordinate the aid and also the community who will distribute the aid. dLOGIS is a mobile application, which will make it easier for coordinators and aid providers to work together. This application is temporarily available in Bahasa Indonesia only. There is five main menus in the main display Mobile version (Disaster Information, Refugees, Data Needs, Logistics Stock, Logistics Accepted). Here are the menus contained in the application dLOGIS:

**Disaster Information**, contains information on the types of disaster events. Disaster information consists of disaster names, disaster locations, current conditions and field coordinators for aid disbursement. This disaster information is input by the admin or by the field coordinator and up to date of any changes in disaster conditions. In this early version only one disaster was shown, but for the next will be developed and displayed several types of disasters that occur together so that people who will provide assistance can choose the location or type of disaster which will be helped.

**Refugees**, on the refugee’s menu displayed the current condition of the refugees. Which includes the number of refugees, the number of families, the number of refugees by age and gender, the number of refugees pregnant and the number of displaced persons with disabilities. This refugee data is updated daily based on the dynamics of the number of refugees in shelters or refugee posts based on data collection, because usually there are refugees who have returned to their homes or stay in their family. The grouping of the types of refugees above is based on the regulation of the head of BNPB number 18/2009 [10]. The following is captured of Disaster Information and Refugees menus, in figure 1.a and 1.b.

![Figure 1. Captured examples Disaster Information and Refugees menus](image-url)
In the menu of **Logistics Needs**, displays the number of refugee needs for daily life. Needs include food, drinks, clothing, toiletries, and blankets. This requirement is based on based on the regulation of the head of BNPB number 18/2009 [10] which is the requirement of each person for each day.

**Available Logistics Stock** menu, shows the available logistics in refugee’s camp or shelter. The last menu is **Accepted Logistics** menu that displays the logistics that deliver by the donor or humanitarian organization. There are two statuses for accepted logistics, delivery process and accepted. At the end of the menu, there is a contact address for coordinate and delivering the aids for refugees. Figure 2 shows the captured examples of Logistics Needs, Available Logistics Stock and Accepted Logistics menus.

![Figure 2](image)

**Figure 2.** Captured examples of Logistics Needs, Available Logistics Stock and Accepted Logistics menus.

### 3. Application

dLOGIS is an information system for disaster logistics. This application can be used anywhere in disaster location as long as mobile phone signal or the internet available. Although this application has not been released yet and still in trial stage, the potential use of this application quite a lot. The main function of dLOGIS is to manage and coordinate the required logistics during the emergency response period. However, it can also be used as information on the availability of logistics stock in BPBD (Badan Penanggulangan Bencana Daerah). Also it can be used as training material for disaster logistics management for government, volunteers or humanitarian community. After some improvements, this application will soon be released and uploaded on the Google Play Store so that it can be used by government or community agencies for disaster logistics management during the emergency response period.
4. Conclusion
A disaster logistics information system (dLOGIS) based on Android has been developed that can be used mobile in disaster areas during emergency response. This application can be downloaded and shared in a community as information to logistic contributors of disaster.

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