A data integration model for multi-agency assets in disaster logistic management

ABSTRACT

The complexity of disasters occurred in recent years demands for a sound and effective disaster management. Since logistics accounts for 80% of the overall cost for disaster management, it requires specific management of its own embedded within the existing disaster management mechanism. This study focuses on the existing disaster logistics management mechanism in Malaysia and how the assets component can be integrated to optimise the utilisation of available resources. This study revealed that there is no linkage between government's disaster responding agencies on their disaster logistics management systems; hence there is no quantifiable way to ascertain how much resources are allocated for the purpose. The objectives of this study are twofold; understanding the current disaster logistics mechanism and proposing a data integration model for existing multi-agency disaster logistics management system. This study employed a systematic approach for empirical studies until data analysis. The methodology used to develop the proposed data integration model is based on the System Development Life Cycle principles, whereby a common data storage approach for data integration was adopted; followed by the Extract, Transform, Load architectural pattern for the model. Subsequently, a conceptual data integration model and logical data integration model were developed. The logical data model comprises of four modules; logical extract, logical data quality, logical transform and logical load module. Further expansion of this study could incorporate location intelligence into the system, and also include resources available from other entities, such as non-governmental agencies and private companies. It is hoped that this study will pave the way towards a comprehensive disaster logistics management in the country.