

Digitally Enhanced Information and Coordination System for Disaster Preparedness in Sri Lanka

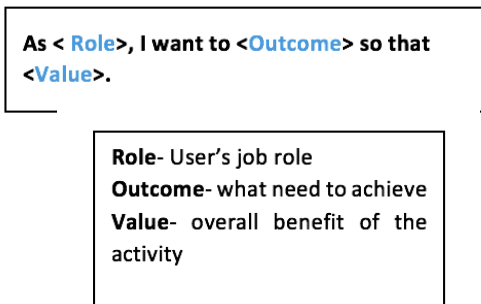
Disaster preparedness is one of the key phases of disaster management that mitigates the impact of hazards and ensures the effective response and recovery. Therefore, enhanced disaster preparedness is imperative to successfully cope with future disasters and thereby to minimise the adverse impacts. In terms of successful disaster preparedness, information and coordination systems play a major role by creating linkages among the different stakeholders and managing preparedness information. However, existing information coordination systems used in disaster preparedness of developing countries like Sri Lanka need to be enhanced by digital technologies in order to obtain successful outcomes of disaster preparedness. Therefore, under the joint collaboration of Multi-Agency Platforms for Building Resilient Communities (MOBILISE) research project and the Center for Disaster Risk Reduction at University of Moratuwa, we have researched on the nature of a digital information and coordination system that can be utilised for disaster preparedness in Sri Lanka.

The process of the developing a digital information system includes user requirement analysis, system design, system development, system deployment, and system testing. Among the aforementioned stages, user requirement analysis has been identified as the



initial and the most important phase of a system development. Hence, the actual user requirements of the proposed system were identified and analysed. The functions and the capabilities of the system are sketched in order to address the existing challenges and the new user requirements.

The user requirements were gathered as 'user stories' separately for each user through in-depth interviews. The users for the proposed system were identified as Disaster Management Officer (DMO) at national level, DMO at district level, DMO at divisional level, Grama Niladadhari and community member. Each user story had three elements as 'Card', 'Confirmation' and 'Confirmation' [Card is a short description of the user story used for planning and prioritising the user requirements]. The format of the card can be presented as below.



The Card component is used while developing user story maps and prioritising the user stories. The Conversation refers to the necessary details around the user story, which help to capture the background of the user requirement. The Confirmation includes conditions and criteria that the user requests from the system for the final outcome to be accepted or rejected.

Accordingly, user story maps for each user was developed separately considering their requirements. The final user story map was developed by combining all the user requirements. Thereafter, the user story prioritisation has been conducted through a focus group discussion. Through the findings of the focus group discussion the user stories were categorised as 'Must Have', 'Should Have', 'Could Have', and 'Won't Have'. The 'Must Have' user stories were finalised as the user requirements that are intended to fulfill in the proposed information and coordination system for disaster preparedness. Accordingly, we identified 25 user stories for the proposed system. The finalised user story map is presented in Figure 1 which describe the all the functionalities that are expected from the proposed system by the users.

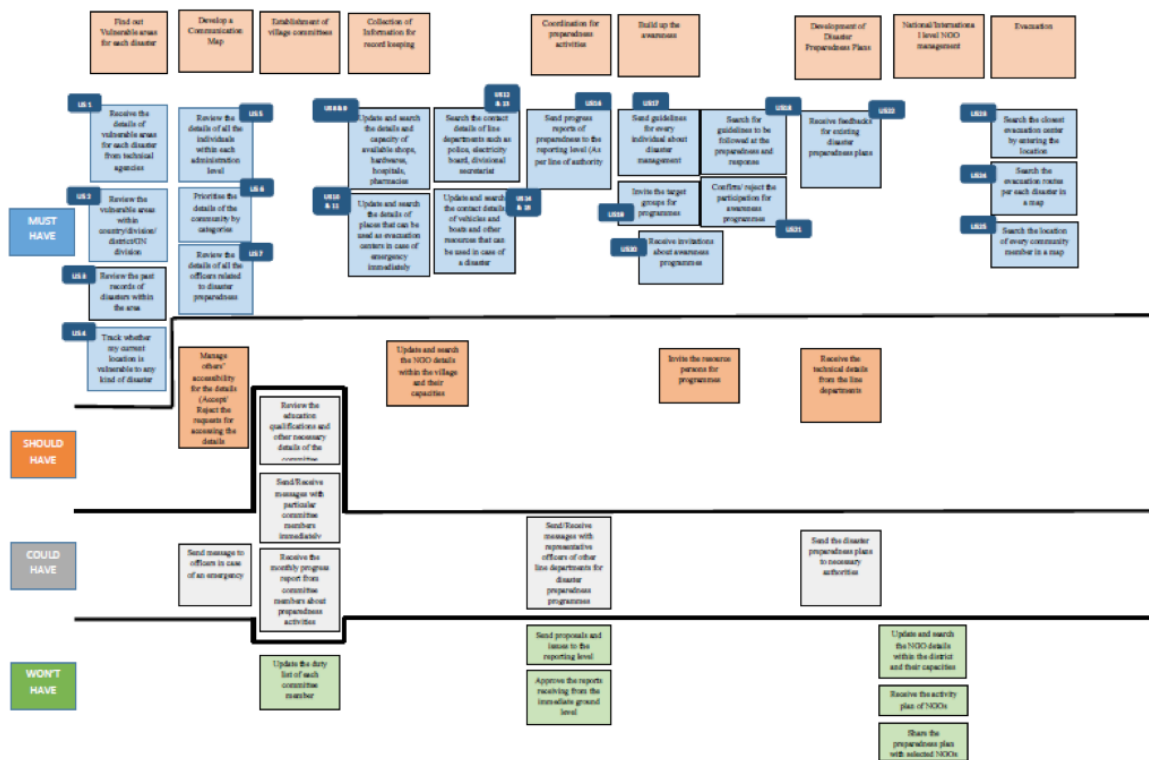


Figure 1: User Story Map

Based on the identified "Must Have" user stories, the framework (refer Figure 2) has been designed to show the final image of a digital information and coordination system for disaster preparedness. As per the framework, the information and coordination system, which has been developed for disaster preparedness was sub-categorised into six sub-systems as communication management sub-system, awareness management sub-system, data management sub-system, vulnerability identification sub-system, coordination sub-system and evacuation management sub-system.

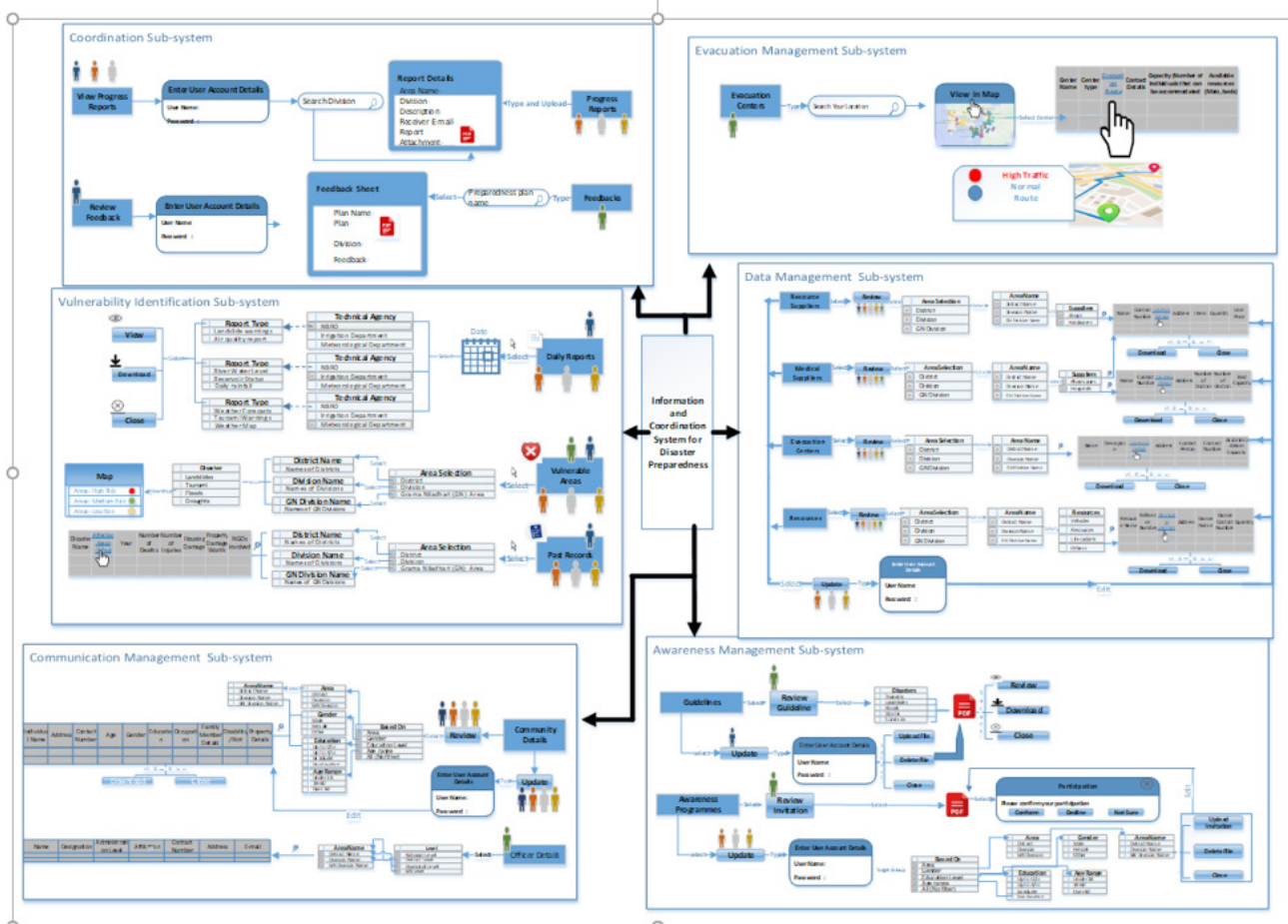


Figure 2: The proposed digital information and coordination system for disaster preparedness

All of these sub-systems are contributing to enhance the functionalities of disaster preparedness components effectively. Further, the proposed system addressed the existing challenges such as lack of user-friendliness, lack of transparency, focusing only on a single hazard, insufficient disaggregate information, issues with information storing, absence of central system and trust issues among the community. When considering the aforementioned factors it can be deduced that the proposed information and coordination system is ideal for a successful disaster preparedness implementation in Sri Lanka.