An Integrated Web-based Decision Support System in Disaster Risk Management

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Nowadays, web based decision support systems (DSS) play an essential role in disaster risk management because of their supporting abilities which help the decision makers to improve their performances and make better decisions without needing to solve complex problems while reducing human resources and time. Since the decision making process is one of the main factors which highly influence the damages and losses of society, it is extremely important to make right decisions at right time by combining available risk information with advanced web technology of Geographic Information System (GIS) and Decision Support System (DSS).

This paper presents an integrated web-based decision support system (DSS) of how to use risk information in risk management efficiently and effectively while highlighting the importance of a decision support system in the field of risk reduction. Beyond the conventional systems, it provides the users to define their own strategies starting from risk identification to the risk reduction, which leads to an integrated approach in risk management. In addition, it also considers the complexity of changing environment from different perspectives and sectors with diverse stakeholders' involvement in the development process.

The aim of this platform is to contribute a part towards the natural hazards and geosciences society by developing an open-source web platform where the users can analyze risk profiles and make decisions by performing cost benefit analysis, Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) with the support of others tools and resources provided. There are different access rights to the system depending on the user profiles and their responsibilities. The system is still under development and the current version provides maps viewing, basic GIS functionality, assessment of important infrastructures (e.g. bridge, hospital, etc.) affected by landslides and visualization of the impact-probability matrix in terms of socio-economic dimension.