



Decision Support Systems and Early Warning Solutions: a review in European context.

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According to the aim of the CHANGES network, an EU funded project, research is carried out towards the improvement of the emergency management strategies for hydro-meteorological hazards under the effects of climate and the pressure of socio-economic changes. Aim supported on the need to enhance local resilience to these hazards under different scenarios, if possible by means of a multi-disciplinary and multi-hazard approach. Both requirements recognized on the scientific and practical community.

In this context, the current management of hydro-meteorological hazards have posed some difficulties due to the complexity of the phenomena and the processes associated. These impacts, usually developed as a domino effect are still not properly understood and require a management strategy that combines active and passive mitigation measures. On the other hand, the every time most destructive effect of these hazards and the available information and communication techniques has also stressed the responsible authorities to prepare, develop and implement more effective safeguard plans. Finally, a combined approach to this situation depicts a research way by integrating the development and implementation of early warning systems (EWS) and contingency plans (CP), which is generally constricted by the state-of-art and particular conditions for the assessment of hazards in place. Consequently, here is presented a review of Decision Support Systems (DSS) and EWS on hydrometeorological hazards such as flash floods, debris flows and landslides as a starting point for such a research initiative. Identification of common and basic features, advantages and disadvantages are expected to derive some elements for possible developments. The review is carried from the key conclusions and recommendations identified with past experiences of testing and developing a common platform; which generally comprises workflow management modules encrypted in a DSS with GIS interface and communication strategies and tools by ICT (Information & Communication Technology) for preparedness and response activities in the field of Civil Protection. The test experience was a joint development between CNR –IDPA and CNRS & University of Strasbourg for the Consortium of Mountain Municipalities Valtellina di Tirano, (Lombardia region, Italy) and the ONF-RTM Service of Barcelonnette (French South Alps).