



Linking hazard maps to contingency planning needs - the MONITOR II Continuous Situation Awareness System (CSA)

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The goal of the CSA (Continuous Situation Awareness) tool currently under development within MONITOR II project (Practical Use of Monitoring in Natural Disaster Management), funded by the EU South East Europe Transnational Cooperation Programme, is to improve situation awareness and knowledge about those situations relevant for disaster management. The MONITOR II CSA defines a series of software components, allowing the easy integration, presentation and use of disaster management information supporting the information needs of stakeholders in different phases of the risk management cycle.

The MONITOR II CSA comprises of a core module serving for service integration, as a rule engine and for visualisation purposes.

The sensor manager supports the integration of sensor information of various sources (by using standards like sensor web) and helps to configure and monitor sensors. Sensor generated information can be visualised and analysed – together with other information sources.

The contingency manager supports the definition of contingency plans (conforming to contingency planning guidelines as defined in MONITOR II) in a digital, GIS based way. In response phase these digital contingency plans support the monitoring and execution of contingency plans (the work-flow of measures) and after an event they serve for evaluation and updating.

The documentation manager documents situations and provides mobile information viewing. On platforms like smart phones or tablets the user is supported in mobile observation (with the help of augmented reality), reporting and information collection.

The presently most developed module of the MONITOR II CSA (concerning requirements definitions) is the scenario manager linking hazard mapping to contingency planning needs, by supporting the definition of hazard scenarios and the extraction of hazard map information vital to contingency planning. As a central module for bridging the gap between hazard mapping and contingency planning in future, it will be described in more detail. Traditionally hazard maps indicate for defined return periods of the considered design events, the spatial distribution of areas which are possibly inflicted by natural hazard processes. Based on the assessment of process intensity and taking into account the possible damages and standard assumptions on the vulnerability of elements at risk, a hazard zonation is done. During hazard assessment a very detailed standard procedure based on technical codes and regulations is followed up by the hazard mapping experts. Although high quality information on hazard processes, process development and possible event scenarios is available during hazard assessment procedure itself, this information is then summarized in reports hardly readable by contingency planners and “condensed” in more or less simple hazard maps. A more “process oriented approach” of contingency planning requires as input from advanced hazard mapping answers to very basic questions about the development of hazard processes and about required actions and measures to be taken.

In order to fulfill these requirements simplified scenario models are defined in the “hazard manager” of the MONITOR II CSA. Scenarios and scenario models are defined as a description of a course of future hazard events and of their impacts, based on a consistent and plausible set of assumptions about future conditions. To make existing hazard maps more useful for contingency planners during preparedness and response phase additionally to the delineation of zones indicated in hazard maps, the course of events and event scenarios are described in short texts in a condensed, standardized and formalized way using a defined ontology. Additionally „hot spots“ (information points, critical points, observation points, intervention points) can be defined in the process (p), damage/loss (d) and intervention (i) domains, being indicators for information linking the hazard/process and the contingency/intervention field by providing key process information or indications of required measures.