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Risk Mapping Case Study: Industrial Area Of Trinec Town (Czech Republic) potentially endangered by floods and landslides

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One of present questions in the context of natural and technological risk mapping, which become important in last years, is analysis and assessment of selected types of multirisks. It results from relevant R&D projetcs and also from international workshops and conferences. From various surveys and presented activities it is evident existence a lot of data and methodological approaches for single risk categories but a lack of tested methodological approaches for multirisks. Within framework of workgroup was done literature search of multirisk assessment methodologies and innovations.
The idea of this relatively small, local scale case study arose during the 3rd Risk Mapping Workshop, coordinated by EC DG JRC, IPSC in November 2007. The proposal was based on the previous risk analysis and assessment project, which has been done for Frydek-Mistek County area (Czech Republic) in the year 2002. Several industrial facilities in the Trinec are partly situated in the inundation area of river Olše and are partly protected by concrete barriers built on the banks of Olše. It has to be mentioned that these banks are unstable and in the permanent slow movement. If iron-concrete barriers will be overflowed by water as the result of sudden bank landslide or flood wave, it could trigger several industrial accidents on steel and energy production facilities. Area is highly developed from demographic and socioeconomic point of view. Selected area is in high stage of geological, engineering geological and hydrogeological investigation.
Most important scenarios of acidents in the area were developed by What-If analysis and Black box analysis (just growth of several different scenarios; qualitative analysis). In the period of few years later, more QRA analyses of industrial risks were proceeded separately, thanks to District Office, public and Seveso II Directive requirements. General scenarios of multi-hazard events was considered.
In the case study, three methodologies was applied to assess hazard and risk: qualitative approach based on German methodology of Risk matrix compilation; quantitative approach based on statistical methods previously used for the area between two towns Hlohovec and Sered in Slovakia; quantitative approach for the modelling of the floods on the river Olse based on model HEC-RAS.
For evaluation of selected scenarios impacts to the facilities and also to the public, including evaluation of present barriers, was used also method of expert assesment.
With regard to the preliminary results it could be estimated, that flooding of industrial facilities is less probable due to existing barriers, but several usefull recomendations for similar prone areas could be derived.

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