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# An overview of serious games for disaster risk management—prospects and limitations for informing actions to arrest increasing risk

ACCEPTED MANUSCRIPT

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## Abstract

This paper reviews serious games/simulations addressing issues related to disaster risk management (DRM) and serving as educational and engagement tools for affected communities, policy-makers, and other stakeholders. Building on earlier research in collecting and classifying serious games, we provide an objective and thorough overview of 45 non-commercial digital and analog gaming activities related to DRM, analyzing their characteristics, target groups, portrayed hazards, and possible DRM skills development. Moreover, realizing the need for a more reliable and scientific approach to testing serious games' effectiveness in contributing to DRM, we explore the categories of objectives of existing activities, and collect qualitative and quantitative evidence (players' feedback, quantitative surveys, scientific articles on the analyzed games etc.) supporting their assessment. Further, we identify the prospects and limitations of gaming in the broader context of DRM, and diagnose existing niches that could be exploited by game producers and researchers to develop more user-tailored game design and reliable evaluation methodology. The research reveals that DRM-related serious games/simulations offer a rich social experience with players collaboratively solving a problem. With a capacity of reaching diverse audiences (embracing adults, children, experts and communities) and of realistically simulating disaster reality, serious games/simulations may assist DRM, especially in the realm of disaster risk

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