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## Learning from the Covid-19 pandemic to advance multi-hazard risk management: a critical analysis of the Italian Red Cross emergency management data

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The long-lasting Covid-19 pandemic emergency that the world has been experiencing for more than two years is dramatically challenging all national emergency management systems. For the first time in recent history, our society has been dealing with a global slow-onset disaster, whose emergency phase is lasting for such an extended period, with varying levels of intensity, even with well-defined cycles. Furthermore, the pandemic has interacted with other disasters that occurred during the last years all over the world (e.g., the earthquake in Croatia, the tropical cyclone Harold, or the devastating floods in Western Europe including Germany, Belgium, and the Netherlands) underlining the compound and cascading nature of disasters. The complex conditions of Covid-19 (and of slow-onsets in general) and their temporal and spatial overlaps with other natural and man-made hazards have highlighted the limitations of the traditional Disaster Risk Management Cycle (DRMC) to deal with complex multi-hazard risk events.

Our research aims to identify and provide evidence of the main limitations of the current DRMC paradigm when dealing with slow-onset risk events considering the potential interactions with other hazards which lead to the creation of complex multi-hazard risk conditions.

Existing weaknesses of the current DRMC are investigated starting from the lessons learned during the Covid-19 pandemic. Specifically, we have considered and analysed data provided by the Italian Red Cross on the management of past and ongoing emergencies including the Covid-19 pandemic. We identified those critical risk management conditions and negative feedback loops triggered or exacerbated by slow-onset risks and multi-hazard risk events. In particular, our results indicate: (i) an initial phase shift between the actual pandemic emergency conditions (i.e. intensive care units occupancy) and the Italian Red Cross emergency response (i.e. number of emergency operators), showing the need for an adaptation phase when dealing with long-onset hazard risks

such as pandemics; (ii) a reduction of the coping capacity (for all the hazards) due to the number of resources deployed to manage the Covid-19 emergency; (iii) a reduction of preparedness activities (including, e.g. training or exercises), due to the continuous emergency phase imposed by Covid-19, which will result in an overall weakening of the risk management system.

The analysis has thus highlighted the need for a revised Disaster Risk Management framework, in which prevention, response, and recovery/rehabilitation operate simultaneously rather than sequentially in complex multi-hazard risk scenarios.

Finally, our study provides insights and lessons learned from the management of the current pandemic seen through the lens of a multi-hazard risk perspective that can be transferred to other slow-onset hazards such as droughts. These results call for improvements of risk management plans within the current national/regional civil protection mechanisms as well as international humanitarian assistance, emphasizing the ultimate need for regional coordination and collaboration.