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## Revisiting risk in a multi-hazard setting: the case of Cyclone Amphan occurring within the COVID-19 pandemic in the Indian Sundarbans

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Amidst a period of complete lockdown due to COVID-19, the severe cyclonic storm Amphan made landfall in the Indian Sundarbans on 20 May 2020. The occurrence of a cyclone during the pandemic warranted investigation of interconnected risks and impacts in this climate hotspot and eco-critical region. Based on a desk study, field observations, key informant interviews and expert consultations, this research focussed on better understanding direct and cascading risks and the associated impacts from the concurrence of the two hazards occurring simultaneously. Our analysis reveals that although the region has not experienced a high number of COVID-cases between March and August 2020, the presence of underlying vulnerabilities exposed the population to cascading effects caused by the pandemic-induced lockdown along with the compounding effect of the Cyclone Amphan. In the Indian Sundarbans, COVID-19 acted as an exogenous shock, but its interplay with interconnected vulnerabilities resulted in the emergence of disruptions of a systemic nature. This was particularly the case in the economic domain, with cascading impacts observed across the welfare, education, and employment sectors. Cyclone Amphan, led to additional cascading impacts on these sectors, and affected other sectors such as health and infrastructure as well as biodiversity. Interventions such as introduction of new social protection schemes and community participation in cyclone preparedness measures have helped the system from facing a total collapse. However, some interventions that were implemented to mitigate impacts of these two concurring hazards somewhat counteracted one another. For example, while stringent COVID-19 interventions stressed on safety norms (including social distancing and stay at home orders), the hazard response protocol for Cyclone Amphan directed communities to evacuate their homes and move to communal shelters which were being used as quarantine units for returning migrant workers till before the cyclone. This caused concerns among the evacuated population, thus undermining the efficacy of the response effort. This case study underpins the need for moving from hazard-by-hazard approaches of understanding and managing risks towards integrated approaches that consider interconnected vulnerabilities, risks and impacts based on a systems perspective. Further, it also provides lessons for risk management in a multi-hazard and multi-risk setting besides sharing recommendations for better

risk management in the Indian Sundarbans.