Assessing floods impacts on population displacement in Sudan

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The frequency and intensity of floods in the Intergovernmental Authority on Development (IGAD) region in Eastern Africa have increased over the years because of climate variability and change. Sudan is one of the IGAD countries most affected by these extreme events. In August 2022, the country experienced the fourth consecutive year of major flooding, which extensively damaged buildings and impacted people's livelihoods. Floods also cause the displacement of thousands of people every year in Sudan due to direct damage to houses and impacts on livelihoods, critical services, and infrastructure. The effects of these events on people's lives are worsened by contextual socio-economic, political, and individual vulnerabilities. In this regard, assessing flood impacts on displacement is crucial to increase people's resilience and risk reduction capacities.

In this poster, we present the design, execution, and results of a data collection campaign focused on a pilot area in the Khartoum State of Sudan. These data will support the next phase of research, which is an agent-based modeling (ABM) study. The aims of the broader study are to better understand the nexus between flood events and displacement patterns in the area, including flood perception, preparedness, and displacement duration, and to evaluate the impact of different risk reduction policies. The overall goal of the effort is to strengthen local resilience and capacity, and to support policymakers in identifying effective mitigation and management strategies.

Considering that there could not be a one-size-fits-all solution for different contexts, first-hand data were collected at the local level to capture specific information about the area and its population. Questionnaires were administered to a statistically significant sample of residents in the pilot area, focusing on household characteristics, their experience regarding floods and displacement, and their risk perception. Among the results, it was found that 67% of the surveyed population was displaced due to flooding at least once, most of them for a period ranging from 1 to 5 months. The main reason for the decision to move was the damage to the house, followed by flood impacting livelihood. Displacements occurred most often during the event itself, showing a lack of preparedness. Data showed that 81% of the respondents perceived that they lived in a flood-prone area, while 56% of them believed they were at high risk of being displaced due to

flood events. To gain a broader understanding of flood risk reduction policies and implementation contexts, representatives of Sudanese institutions and relevant organizations were interviewed. Policy options were explored, including housing policy and Early Warning Systems. Both questionnaires and interviews are being used to inform the construction of the ABM.

The research is therefore relevant to understand the main elements that affect displacement decisions and to support the design of strategies for mitigating the risk of involuntary mobility in the area, and for increasing people's resilience and capacity to cope with flood events and displacement risks.