

## Trade-offs between flood risk and sanitation and their impact on health and well-being of population – Dr Marina Batalini de Macedo

Extreme precipitation events are the main precursors of risk for the population, affecting transport and services systems, generating economic and urban infrastructure losses even injuries. As part of the affected infrastructure, we can mention the water supply and wastewater systems. Due to their proximity to water bodies, these systems are usually located in a region of greater risk exposure and can be directly and indirectly affected by floods. Due to its importance for maintaining the well-being and health of the population and the environment, disruptions or changes in the provision of these services have a major impact on the public and environmental health of the affected area. Additional risk is posed in developing countries, where the access to sanitation systems is not universal and people living in low-income and informal settlements can still lack of central water supply facilities and wastewater collection. The absence of wastewater collection facilities can lead to deposition of sewage directly in water bodies or in the urban drainage systems, resulting in a contamination of water bodies and. During flood events, the population will be in direct contact with the different types of contaminants and possible pathogens, presenting itself as another pressure in the health systems and well-being of the population. However, few studies assess the risks of these systems from floods and their impacts, allowing the proposition of risk management measures aimed at increasing local resilience regarding sanitation provision and public health. Therefore, this study aims to present a structure for assessing the risk of sanitation systems from flood events in urban centers, based on the elaboration of causal loop diagrams, identifying trade-offs and synergies between the different system, allowing to identify crucial criteria for vulnerability and exposure evaluation. The final assessment is made spatially in the study area, integrating the criteria assessment with the hazard, using Geographic Information Systems for the elaboration of risk and resilience maps.