INVITED SPEAKERS

Professor Roberto Mugavero, a renowned environmental engineer and security studies expert, is a key figure in the field. He leads research and education initiatives at the Centre for Security Studies and the Second Level Master Degree in International Security Studies. Mugavero's work in environmental risk management is part of the Civil and Environmental Engineering degree course. He also serves as a Member of the Academic Senate at the University of the Republic of San Marino, influencing academic policies and fostering collaborative research. As President of the European Centre for Disaster Medicine and the Observatory on Security and CBRNe Defense, Mugavero promotes initiatives to enhance disaster preparedness and response. His expertise in security, territorial risk, and CBRNe risk is evident in his numerous conferences and seminars.

Chemistry and Disaster Resilience: Focus Chemical Emergency, Preparedness and Response

Among escalating global challenges, the convergence of chemistry and applied sciences emerges as a pivotal force in enhancing disaster resilience. This article delves into the latest advancements, challenges, and prospects in this dynamic field, emphasizing innovative approaches, emerging technologies, and interdisciplinary collaborations that are reshaping disaster preparedness, response, and recovery. It highlights the transformative potential of chemistry and applied sciences in mitigating the impacts of both natural and human-induced disasters. Key areas of focus include the development of novel materials with superior properties for infrastructure reinforcement, advanced sensors for early warning systems, and AI-powered predictive analytics that optimize disaster response strategies. Additionally, the role of community-based participatory research in fostering local engagement and empowerment is explored, ensuring that resilience strategies are contextually relevant and sustainable. Advanced technologies such as drones, renewable energy solutions, and biotechnological innovations are identified as significant contributors to global disaster resilience. The article underscores the importance of interdisciplinary collaborations and public-private partnerships as catalysts for breakthroughs, bridging the gap between scientific research and practical applications. Although challenges like limited funding and ethical considerations, the convergence of diverse scientific disciplines holds immense potential. Inclusive governance and holistic approaches are essential to address socio-economic vulnerabilities and build a resilient world. This article underscores the transformative power of science and technology in navigating the complexities of disaster management and sustaining resilience touching future challenges.