5th World Congress on DISASTER MANAGEMENT

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Volume 1

DISASTER RISK MANAGEMENT

Edited by

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Preface

The Fifth World Congress on Disaster Management (WCDM) was organised in Delhi from 24th to 27th November 2021 jointly by the Government of Delhi, the Indian Institute of Technology Delhi, and the Disaster Management Initiative and Convergence Society which created the platform of WCDM. Over the years, WCDM has emerged as the largest conference on disaster management in the developing world.

The theme of the Fifth WCDM was *Technology, Finance and Capacity.* 7 Plenary Sessions, 50 Technical Sessions and Special Technical Sessions were organised around this overarching theme. While eminent thought leaders and experts delivered keynote addresses and participated in the panel discussions of the Plenary Sessions. It is the Technical Sessions that received the longest traction as Call for Papers was issued for these sessions months in advance and more than 600 researchers, practitioners and policy makers responded with abstracts of their ideas. These were reviewed by experts and subsequently, 250 of these abstracts were developed as full papers. This is the first of five-volume series of compendium of these papers.

The papers have been published in the same form these were received without any peer review to provide a flavour of the raw ideas that emerged from the Technical Sessions of the conference. Some of these papers presented by the young researchers and practitioners may not have the rigours of academic disciplines, but these do reflect the cross current of thoughts that went around in these sessions of the Conference. These provide new ideas and insights that provide value to the current discourses on the subject.

These papers have been arranged under five broad themes—first: Disaster Risk Management, second: Nature and Human Induced Disasters, third: Coronavirus Pandemic, fourth: Disaster Response and fifth: Challenges and Opportunities of Disaster Management. Understandably the papers do not cover every aspect of the themes, these discuss only those aspects that the authors have chosen to highlight. The present volume is a compilation of 45 papers on the theme of Disaster Risk Management, which is further divided into six sub-themes, first: Harnessing Science and Technology for Building Resilience to Disasters, second: Innovations in Construction Technology, third: Using Artificial Intelligence and Internet of Things for Managing Risks of Disasters, fourth: Application of Remote Sensing, GIS, Drone and UAV for Disaster Risk Management, fifth: Disaster Management Laws and Governance and, sixth: Risk Governance in the Age of Pandemics.

The Conference secretariat has brought the papers together, but his credit lies solely and exclusively on the authors.

Dr S. Ananda Babu
Convener
Fifth World Conference on Disaster Management

Acknowledgement

DMICS, the organizer of the 5th World Congress on Disaster Management (WCDM), expresses its deep appreciation to Government of Delhi (GNCTD), NDMA, NIDM, DRDO, UNICEF, ICMR, GSI, and Knowledge Partners, delegates who have supported the 2021 World Congress on Disaster Management with either earmarked or unearmarked contributions. A special acknowledgement goes to Indian Institute of Technology, Delhi for hosting the 5th WCDM for its strong support.

DMICS would like to express our deepest appreciation to Hon'ble Union Minister of Defence, Shri Rajnath Singh for inaugurating the 5th WCDM and delivering the inaugural address; Mami Mizutori, UN-DRR Chief and Special Representative of the UN Secretary General for her special message and Dr Balram Bhargava, Secretary, DHR and Director General, ICMR for his key note address. We would also like to convey our heartfelt appreciation and gratitude to Prof. V. Ramgopal Rao, Director of IIT Delhi, Dr. Parvez Hyatt, for their strategic support and guidance. Our indefatigable team members, Col. Sanjay Srivastava Dr. Chandrappa, Dr. A. Kishan, Prof. B. Gopal Rao, Mr. Bhaskar Rao Volam, Dr. B. Ram, Prof. V. Prakasam, Dr. A. Gayathri Devi, Dr. R.K. Srivastava, Mr. Amit Kumar, Mr. Mohan Kasthala, Mr. Pavan Parlapalli, Mr. Manish Vishnoi, Ms. Suparna Dutta, Ms. Parul Sharma, Ms. Megha B Bhati, M. Zoya Khan, Ms. Areeba Naaz, Mr. Rohit Kumar Azad and Ms. Shweta Zanjrukia, deserve a huge appreciation for working tirelessly for the last one year in ensuring that 5th WCDM reaches new horizons in bringing together the Government Duty bearers, Policy makers, Planners, Researchers, Academicians, Practitioners and other key stakeholders.

DMICS extends its sincere gratitude to the large number of organisations, individuals and volunteers who have contributed to the 5th WCDM, through technical support and in numerous other ways. DMICS would like to express its deepest appreciation also to the members of the Scientific and Technical Committee (S&TC) along with its Chair, technical leads and collaborative organisations of Pre-Conference Webinars, Plenaries, Special Feature Events, Special Technical Sessions and Exhibitiors.