



THE INTERNATIONAL EMERGENCY MANAGEMENT SOCIETY - TIEMS

Proceedings of the International Emergency Management Society
(TIEMS)

22nd TIEMS Annual Conference

***Evolving threats and vulnerability landscape: new
challenges for the emergency management***

Edited by: Snjezana Knezic, Meen Poudyal Chhetri

Rome, Italy, September 30 - October 2, 2015

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**September 30 - October 2, 2015
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Preface

Dear colleague,

we would like to thank you very much for reading the proceedings volume of the “TIEMS International Annual Conference”, which took place in Rome, from September 29 until October 2nd, 2015.

The conference has been organized by the TIEMS Chapter Italy and hosted by the Istituto Superiore Antincendio (i.e. Italian Firefight Academia).

The general theme of the conference was “*Evolving threats and vulnerability landscape: new challenges for the emergency management*” and its main objective was to bring together leading researchers, practitioners and industries from all areas of emergency management to take advantage of the presented methodologies and practical applications. In particular the conference aimed at evaluating gaps and the constraints that need to be overcome in order to improve the response capacities of first responders and the resilience of communities exposed to several type of hazards and threats. With more than 250 registered participants and 67 presentations we outnumbered our own expectations for this event.

The conference covered all aspects related to Emergency Management, Risk Analysis and Preparedness activities, both for predicting Critical Scenario and for managing hot phases. The presentations included aspects like:

- risk reduction and mitigation techniques,
- cyber-physical threats and vulnerability analysis,
- model-based and experimental assessment of safety, reliability and security;
- human and social aspects in emergency managements,
- management of complex emergency scenarios and epidemic spreading.

The broad variety of topics is also reflected in the long list of keynote speeches and the related thematic sessions:

- Dr. Meen P. Chhetri (NCDM, Nepal) - “Nepal earthquake aftermaths”;
- Ing. M Dolce (General Director of Italian Department of Civil Protection, Italy), “The Italian Dept. of Civil Protection (DPC) and its role in the Emergency Management”;
- Dr. Kim, Jae-Kwon (Korean Society of Disaster & Security), “Sewol Ferry Disaster and Emergency Response Management in Korea”;
- prof. John Hamilton (Kestrel Group, New Zealand), “Emergency Management after the Christchurch earthquake” (video interview by prof. Sonia Giovinazzi, University of Canterbury, NZ);
- Prof. Dirk Helbing (ETH Zurich, Switzerland), “How to Increase Systemic Resilience in an Information Rich World”;
- Dr. Daniel Stevens, (Director of Emergency Management at City of Vancouver - Canada) “Emergency Management and Resilience in the metropolitan area of Vancouver”;
- Dr. David Bamaung, (Scottish Government, Scotland, UK), “Critical Infrastructure Resilience and Public Private Collaboration”;
- Ji Zhang, (Harmony Technologies Ltd, CHINA), “Ten year development in China Emergency Management 2006-2015”.

Besides many invited and contributed talks, the conference participants especially enjoyed a vivid roundtable discussion titled *“Lesson Learnt from the Nepal Earthquake event: what still are the main challenges to improve the disaster management and the role of emerging technologies”* with the main contribution of:

- Prof. Dr. Meen B. Poudyal Chhetri – President, Nepal Centre for Disaster Management;
- Dr. Guosheng Qu, Dep. General Team Leader of CISAR, China;
- Dr. Kailash Gupta - Honorary Managing Trustee, TIEMS India Chapter;
- Jaroslav Pejcoch, T-SOFT (Crisis management, Interoperability, Security), Czech Republic;
- Prof. Carl W. Taylor, Fraser Institute for Health and Risks Analytics, Princeton;
- Ing. Mauro Dolce, Italian Civil Protection, Italy.

Moreover, we had a special workshop co-organized by Dennis Andersson (FOI), Josine van de Ven (TNO), Maciej Szulejewski (ITTI) On *“Pan EU lesson sharing crisis management: DRIVER Project”* which aimed to identify what types of methods and tools can support the lesson sharing process European Member states and how such lessons can be transferred to other organisations.

We have to express our gratitude to our sponsors that strongly trusted and shared the TIEMS values and goals. A special thank goes to the scientific committee, which provided a crucial support to define the objectives and the contents of the conference. In particular, we are grateful for the large number of high quality submissions and we would like to especially thank the many referees that helped to control and even improve the quality of the presented papers.

Finally, it is worth mentioning, however, that there was enough time reserved for social events like the gala dinner in one of the most beautiful areas of the renaissance and baroque Rome, which allowed people to establish new contacts and to consolidate the TIEMS community.

The all TIEMS Chapter Italy and editors of this volume would like to thank again all participants of the conference, all speakers, all members of the organizing committee, all contributors to this volume, the referees, and finally our generous sponsors.

We hope to see you next year again.

TIEMS Chapter Italy

Carmelo DI MAURO

Vittorio ROSATO

Alessandro LAZARI

Welcome to TIEMS 2015 Annual Conference from TIEMS President

It has happened again in Nepal. A poor and vulnerable population has been struck by a devastating disaster, which, however, was predicted by the scientist experts. This disaster again emphasizes the need for the world community to move its focus from *Response to Preparedness*. It was a predicted disaster, as many others also are, and shows again the need for increased systematic work on preparedness through strengthening the infrastructure, early warning systems in place, and plans for evacuation and recovery worked out. Also extra food, water and medical and other supplies have to be ready in case the disaster strikes.

In a time of increasing number and severity of disasters, like the Nepal earthquake, global cooperation and coordination are more vital than ever. By working together and sharing of experiences and exchange of views among the experts of different countries, we can learn from each other to develop better methods and systems and advocate for better policies in emergency and disaster management to be standardized and implemented all over the world. TIEMS conferences and workshops worldwide are such platforms where all stakeholders can meet and exchange experiences and views and focus on different globally important subjects in emergency and crisis management.

TIEMS 2015 Annual Conference is focusing on ***“Evolving threats and vulnerability landscape: the new challenges for the emergency management”***. **The Nepal earthquake will have a special focus with a round table conference, together with about 50 presentations from more than 20 nationalities worldwide will give an international view of the evolving threats and challenges in emergency management. Proposed solutions to deal with the increasing number of disasters worldwide will also be addressed.** This should form a good meeting place between the locals and international experts and young students and should be an excellent opportunity to learn from each other and exchange experiences and hopefully find better solutions, which can improve local and international preparedness for disastrous events.

TIEMS is a Global Forum for Education, Certification and Policy in Emergency and Disaster Management and is dedicated to developing and bringing the benefits of modern emergency management tools and techniques and best practice to society for a safer world, through exchanging information of the use of innovative methods, technologies and operations to improve society's ability to avoid, mitigate, respond to and recover from natural and technological disasters. TIEMS provides a platform for all stakeholders within the global emergency and disaster management community to meet and network, learn about technologies and operational methods, and exchange experience on best practice, and by this aim to influence policy makers worldwide to improve global cooperation and establish global standards within emergency and disaster management.

TIEMS Italy Chapter is the conference host, and Vittorio Rosato, Carmelo di Mauro and Alessandro Lazari from TIEMS Italy Chapter have taken the main load of all preparations of the conference preparations together with their local colleagues. They have done impressive preparations of the event and recruited sponsors, exhibitors and presentations of high quality, seeing to it that we have a high quality program with key international speakers and exhibitors. TIEMS like to thank TIEMS Italy Chapter for this excellent job in preparing the conference and take the initiative to develop TIEMS Italy Chapter. The event will have more than 100 participants from all over the world. The participants will

take part in a comprehensive program of important presentations in the field of emergency and crisis management. The participants are also invited to **EXPO Milan 2015 with complimentary tickets to the exhibition and Security Control Room Tour, October 3rd, by one of our sponsors, Finmeccanica.** The above technical program integrated with relaxing social events, showing the Italy culture on its best, will certainly make the 4 days at TIEMS 2015 annual conference in Rome a memorable event.

The papers will be presented in the conference proceedings, and also be uploaded to TIEMS Library, which can be accessed through TIEMS web-site, www.tiems.org. The papers in the proceedings should give a broad international view of important issues in emergency and crisis management in an international perspective. With these proceedings, TIEMS like to stimulate to a continuous ongoing global dialogue in emergency and crisis management. Many thanks go to Snjezana Knezic for her excellent job with preparing and being the main editor of the proceedings supported by the local host representatives.

TIEMS is an international non political and not for profit NGO and has limited financial resources. TIEMS 2015 Annual Conference had not been possible without the local supporting organizations and the sponsors. TIEMS is very thankful to all of them.

A special thank you goes to the Fire Prevention Institute, I.S.A., which is our organizing partner and has opened their premises for the venue.

I welcome all participants to TIEMS 2015 Annual Conference in Rome, Italy, 30th September – 2nd October 2015.

Oslo 27th September 2015
K. Harald Drager
TIEMS President

Conference Chair

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