TIEMS
The International Emergency Management Society

THE INTERNATIONAL EMERGENCY MANAGEMENT SOCIETY
Newsletter - ISSUE 34 - October 2018

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TIEMS 25th Anniversary and 2018 Annual Conference

Manila, Philippines, 13 – 16 November 2018

At the University of Santo Tomas, the oldest university in Asia

In this issue

The International Emergency Management Society

TIEMS continues its international development, and is spreading out its activity more and more worldwide, with members and chapters. New members and chapters add valuable expertise and cultural diversity to the TIEMS international network, which comprises of users, planners, researchers, industry, managers, response personnel, practitioners, social scientists, and other interested parties within emergency management and disaster response. This network constitutes a large international multidisciplinary group of experts, with different educational backgrounds and various experiences. Read more about this network and its activities in this newsletter.

Joseph Pollack
TIEMS Newsletter Editor

Table of content

MESSAGE FROM TIEMS PRESIDENT

TIEMS Celebrates its 25th Anniversary

In May 1993, a group of international experts in emergency management met in Washington DC at the Mariott Hotel and founded the The International Emergency Management Society – TIEMS. The story of this event and the further history of TIEMS can be found below. I have been with TIEMS since its foundation, and I have attended all TIEMS annual conferences and I have taken active part in the development of the society. It has been a "steady speed" towards TIEMS goal of contributing to a safer world. I was TIEMS Vice President from the start and I arranged TIEMS 2001 Annual Conference in Oslo. I took over as President in 2002. Up to 2002 TIEMS arranged only an annual conference each year, and changed venue between Europe and North America every year.The board decided, however, in 2002, to develop the TIEMS concept further by establishing chapters around the world under the slogan of "Think Globally and Act Locally" and initiate more TIEMS activities.

Since TIEMS is a volunteer NGO organization, with no stable financial support, things takes more time, but I am proud to tell that TIEMS now has 14 chapters around the world, which works with developing local TIEMS activity. The dialogue is on with TIEMS members in more countries, and I trust we will see more TIEMS chapters in the coming years. TIEMS has also become a recognized partner in EU funded research projects because of our excellent international network of experts. The volunteers in TIEMS Board, Advisory Board and Chapter Boards form TIEMS International Group of Experts (TIGE), counting 100 individual experts from 25 countries, with varied experience and background. TIEMS has participated in three EU projects; NARTUS, ASSET and HERACLES (still running), and we are involved in three proposals this year applying for EU funding. In addition, TIEMS experts is on advisory and user boards in many EU funded projects. Below is TIEMS President 2018 Annual Report, which sums up TIEMS 2017 – 2018 activities and TIEMS future plans.

TIEMS 2018 Annual Conference

TIEMS celebration of its 25th Anniversary combined with TIEMS 2018 Annual Conference takes place at University of Santo Tomas (UST), in Manila 13 – 16 November this year as a joint conference with UST Conference on Disaster Risk Reduction and Climate Change. The announcement and program is found in the Newsletter.

TIEMS Future Plans

TIEMS has found its international role as a forum for educatiuon traing and policy in emergency management and disaster response, and TIEMS will furher develop this role to add value to create more resilent societies worldwide. The inititaive of TIEMS TQC Certification is TIEMS most imporatnt future project. TQC stands for TIEMS Qualifications in International Emergency and Disaster Management (QIEDM) Certification. There is not existing any international recognized certification in emergency and disaster management, and TIEMS intends to bring TQC forward to become that certification. The future of this concept will be discussed in a workshop during TIEMS 2018 Annual Conference in Manila. Please, join TIEMS and take part in our important future in emergency and disaster management.

Other Articles in this Newsletter

At the end of the newsletter, there are a survey request and two very good and interesting articles :

- Civil Protection in Europe: Towards a Unified Command System?
- Arcon Method Summary

Have a Good reading !

Oslo 31tst October 2018
K. Harald Drager
TIEMS President

EDITOR'S MESSAGE

November is the time for the TIEMS annual conference, and boy are we looking forward to it. Phillipino hospitality is unequalled in the world and this year's annual conference in Manila is shaping up to be a great opportunity for diplomacy and learning with key decision makers in the Region and beyond.

As some of you may know TIEMS annual conferences are crucial moments for our group to meet and greet and organise the collaboration and activities for the year(s) ahead. Many of us come with our hands full of better practices and local opportunities for collaboration in areas ranging from training, to research, from good practices to the newest in civil protection technologies. If you're a rescue, civil protection or public health professional – you'll be remiss not to join us!

The local organising team has done an amazing job to get the word out about the conference. This year we're honoured to be welcomed by the President of the Philippines, Rodrigo Roa Duterte, and by the Rector of the University of Santo Tomas, Fr. Herminio V. Dagohoy. Who knows with all that talent in one place, maybe we can add value to save the world?

If you haven't already, now's your last chance to talk about the conference around you to your network, the more of us there are there, the more we can learn first hand from our hosts and the attendees – what's not to like? In fact, in this edition of the news letter we're giving you a taste of what's to come. If you're reaching out to your network why not take the time to include the enclosed survey. It's about a very common practical problem called too many t-shirts – how many tons have you buried?

This month I'm featuring one of our board member's research. He observes and analyses inter-Service collaboration as a behavioural aspect of incident managent. You won't be surprised to learn that co-opetition between services leads to sub-optimal outcomes. Nonetheless this 2017 research outcome has snowballed into a bonifide research programme. So have a look, and if you have great ideas, share and collaborate with TIEMS because we're always stronger together! For more information **contact me** directly and I will gladly orient you based on your needs. Stay up to date with the **latest news** by reading our newsletter. Read more for **special deals** and the most **exciting upcoming events**!

Joseph Pollack

TIEMS Newsletter Editor

The International Emergency Management Society - TIEMS

Introduction to TIEMS

TIEMS prepares the world for emergencies. TIEMS is a global forum for education, training, certification, and policy for emergency and disaster management. TIEMS provides a platform for all stakeholders within the global emergency and disaster management community to meet, network and learn about new technical and operational methodologies. Our conviction is that sharing knowledge and best practices worldwide better prepares each of us to face emergencies at home, and better prepares all of us to face together increasingly global and severe emergencies.

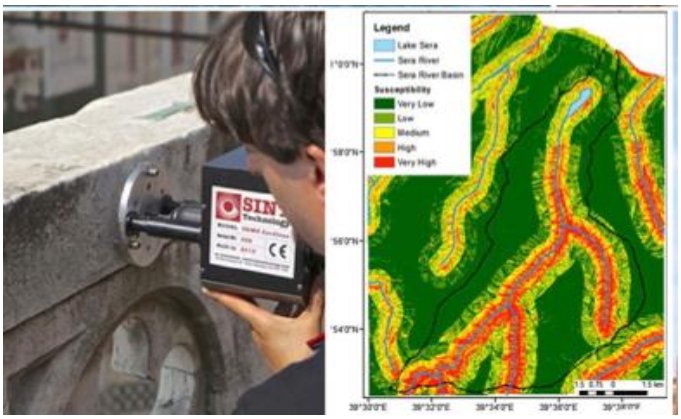
The TIEMS international organization was established in 1993 in Washington DC, and is today registered in Brussels, Belgium as an International, Independent, Not-for-profit NGO. TIEMS has local chapters in BeNeLux (Belgium/Netherlands/Luxembourg), China, Finland, India, Iraq, Italy, Japan, Korea, Middle East and North Africa (MENA), Nigeria and West Africa (NWA), Romania, United States of America, Philippines and Ukraine. The TIEMS local chapters mandate is to establish local TIEMS activity and recruit local members, and see to it that the worldwide cultural differences are understood and included in TIEMS activities and operations.

Pictures from TIEMS events in 2017 in New Delhi, Manila and Kiev

Pictures from TIEMS events in USA, India, Philippines and China

TIEMS Activities

Conferences and Workshops - TIEMS organizes conferences, workshops, and exhibitions worldwide covering a wide range of research, best practices, and other topics in emergency management. In recent years conferences have been held in Kiev in Ukraine, San Diego in USA, Rome in Italy, Niigata in Japan, Aix-en-Provence in France, Erbil in Iraq and Beijing in China and this year TIEMS 25th Anniversary and 2018 Annual Conference will be held in Manilla, Philippines, see Manila. In addition to our special Annual Conference, local chapters host local international conferences and workshops throughout the year.

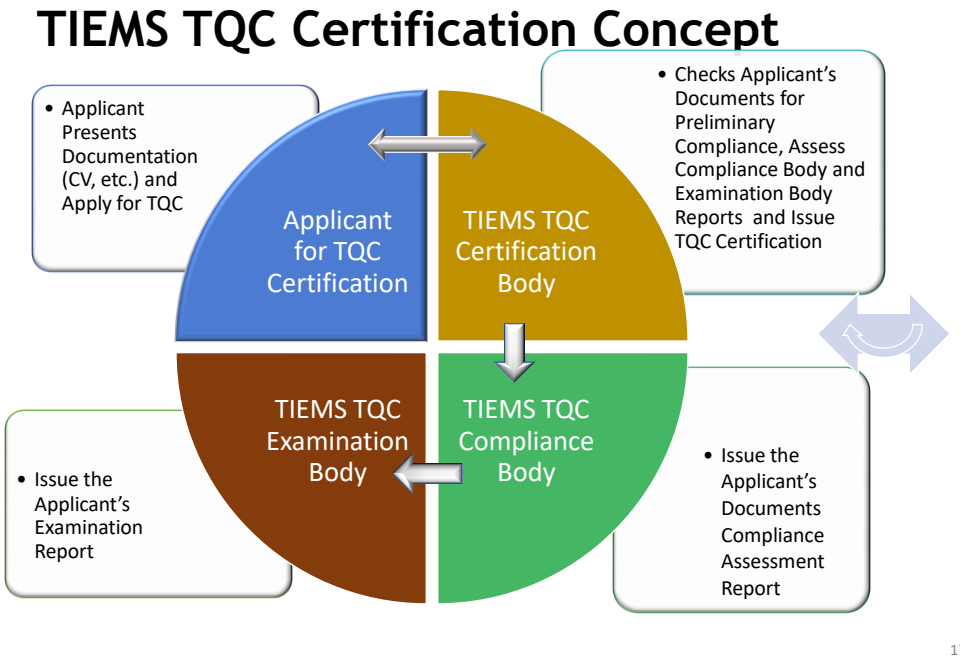


RTD Projects - Because TIEMS is known in the international community for the wide-ranging expertise of its members, and for its ability to network researchers, practitioners, and policy-makers, TIEMS is often asked to participate in Research and Technology Development (RTD) projects sponsored by the European Union and other organizations. TIEMS members who express interest to participate in the RTD projects TIEMS gets engaged in, are selected based on their qualifications, and the expertise needed to staff the projects. The ongoing RTD projects TIEMS was involved in in 2017 were ASSET, a four-year program to improve public health communications during health emergencies, and HERACLES, a three-year RTD program to develop technologies to improve cultural heritage sites in the face of climate change.

Experts - The TIEMS International Group of Experts (TIGE), consisting about 100 experts with different educational background and experience from 25 countries, has been established as a resource to assist the global community in emergency planning, preparedness, and response. They are all TIEMS volunteers manning the TIEMS Board, the TIEMS Advisory Board and TIEMS Chapter Boards worldwide. TIGE's unique worldwide network of experts adds the cultural diversity to emergency management and disaster response that makes TIEMS such a valuable international network, see TIGE.

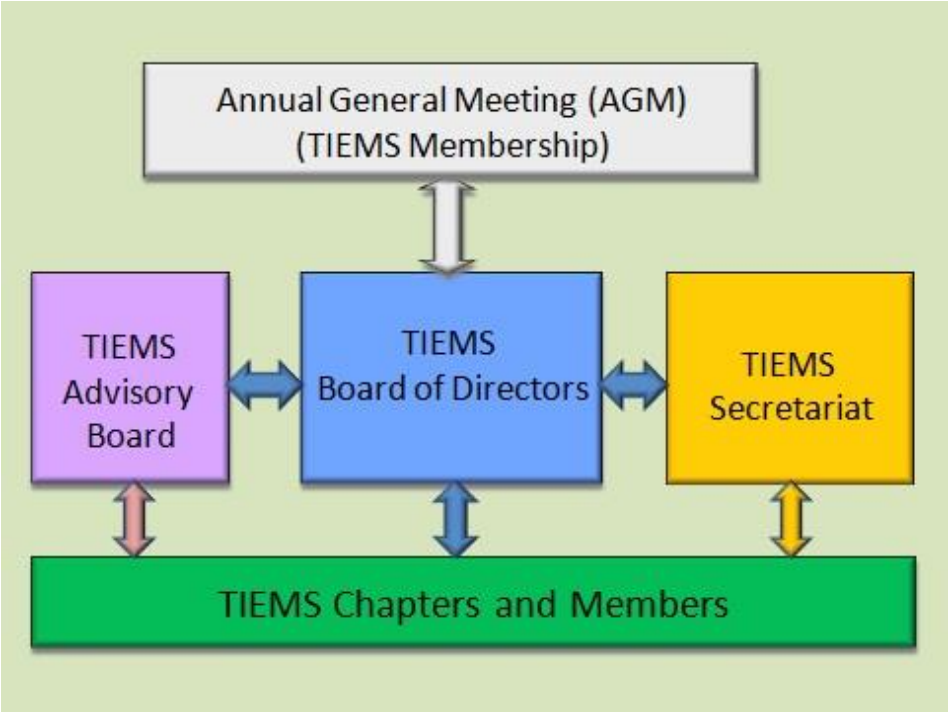
Education and Certification - To further the ability of professionals to contribute to international emergency management, TIEMS has established two initiatives: The TIEMS Academy, an on-line resource and network of educational centers, which will offer courses and educational material in emergency management and disaster response in cooperation with the TIEMS International Educational Network of Excellence (TIENE); and the TIEMS Qualifications in International Emergency and Disaster Management Certification (TQC), a program to allow professionals to become certified in international emergency and disaster management, see TQC.

The figure below describes the TIEMS International Certification Initiative TQC



TIEMS Structure

TIEMS is a true international organization with a structure as shown below, comprised of a TIEMS Board of Directors and an Advisory Board with members from 18 countries. The TIEMS Secretariat is located in Brussels, Belgium, where TIEMS is registered as an international not for profit NGO. The members of TIEMS form the Annual General Assembly, which meets once a year during the TIEMS annual conference, during which TIEMS members evaluate the past performance of the organization and lay down plans for the future.



The current members of the TIEMS Board and Advisory Board and their functions are found below.

TIEMS 2017 – 2018 Board of Directors

K. Harald Drager
President
(Norway)

Guosheng Qu
Vice President
(China)

Jack (Ji) Zhang
Treasurer
(China)

Jaroslav Pejcoch
Secretary & Chair of Advisory Board
(Czech Republic)

Snjezana Knezic
Director of Membership & Chapters
(Croatia)

Regional Directors/ Officer (LAC)

Jean-Paul Monet
Europe
(France)

Thomas Robertson
North America
(USA)

Mohammed Shuaib
Middle East & Africa (MENA)
(Iraq)

Neil Dufty
Australia & New Zealand& Oceania
(Australia)

Jae Kwon Kim
Asia
(South Korea)

Diego Fernandez Otegui
Latin America & Caribbean (LAC)
(Argentina)

TIEMS 2017 – 2018 Officers

Meen Chhetri
Chair Paper Review Committee
(Nepal)

Joseph Pollack
Regular Newsletter Editor
(USA)

Alex Fullick
Special Edition Newsletter Editor
(Canada)

Samantha Ueno
Social Media Editor
(UK)

Wenlong Yang
TIEMS Asia Secretariat Officer
(China)

Shakir Katea
TIEMS Task Force Activity Officer
(Iraq)

Sandro Bologna
Chair of International Program Committee
(Italy)

George Markowsky
Chair of TIEMS Academy
(USA)

Nina Frolova
Research, Development Coordinator
(Russia)

Yukio Fujinawa
Chair of Disaster Early Group
(Japan)

Ranko Britvic
Officer for Sponsorship, & Exhibitors
(Croatia)

Chen Ran
TIEMS Emergency *(TEMC) Director*
(China)

Angeli Medina
TIEMS 2018 Annual *Conference Host*
(USA)

TIEMS Chapters

TIEMS is building an expert network worldwide, where chapters play an important role in establishing local TIEMS activity

TIEMS chapters are established in 14 countries; Romania, Belgium/Netherlands/Luxembourg (BeNeLux), Italy, Middle East and North Africa (MENA), Iraq, India, Korea, China, Finland, Nigeria and West Africa (NWA), USA, Ukraine, Philippines and Japan.

A TIEMS chapter is an autonomous entity within the TIEMS network. It establishes local TIEMS activities and recruits TIEMS international and local chapter members in the Chapter area. TIEMS international members pay their membership fees to TIEMS International, and 25 % of the membership fee is paid back to the Chapter to be used locally for Chapter activity. The Chapter can also recruit TIEMS local chapter members who pay only membership fees established and retained by the local chapter. These members are registered in TIEMS International as local members and receive all information from TIEMS; however, they have no voting rights at the TIEMS Annual General Meeting. A chapter is autonomous concerning its activities and finances. However, if Chapter activity results in a surplus, 20 % of the surplus is paid to TIEMS International to support the TIEMS Secretariat. The TIEMS Secretariat is available to the Chapter for administrative support. The Chapter reports annually to the TIEMS Secretariat about Chapter activities, plans and finances.

The requirements for establishing a TIEMS Chapter are as follows:

1. The Chapter region has to be defined so that it does not geographically overlap existing chapters
2. There must be at least 5 founding members of the Chapter with valid TIEMS International membership
3. The Chapter must be registered in a country of the Chapter's region as a non-profit organization
4. Chapter By-Laws must be established which are not in conflict with TIEMS By-Laws
5. A Chapter Board with at least 5 members must be appointed/elected
6. A Chapter bank account must be opened in the name of the Chapter
7. The Chapter must be an Institutional Member of TIEMS
8. A plan for the Chapter activities must be prepared.

An application with the above documentation must be sent to the TIEMS Secretariat.

Why Join TIEMS?

TIEMS offers a unique opportunity to Learn, Serve, and Network:

- ***Learn*** – TIEMS membership offers an exceptional learning opportunity through participation in TIEMS's multi-disciplinary, multi-national community; access to TIEMS events and educational materials; and participation in the TIEMS international emergency management certification initiative

- ***Serve*** – as a member you are eligible to have a direct impact on the TIEMS mission to improve the world's emergency management, by participating in TIEMS RTD projects; supporting special initiatives such as the TIEMS Academy, TQC Certification, or TIGE; or by becoming an officer or board member

- ***Network*** – as part of TIEMS, you will develop valued personal and professional relationships, locally and internationally, that enhance your professional knowledge and opportunity, and broaden your appreciation of the multi-cultural global emergency and disaster management community.

The international emergency management communities have much to learn from each other. TIEMS is actively seeking to expand its operations worldwide, to further capitalize on this unique opportunity to make the world safer. Please join us and become part of our international communication and operation! We offer exceptional opportunities to work with us to expand TIEMS worldwide by participating in one of the following initiatives:

- ***Membership outreach*** - help create a worldwide database of potential members to contact, inform, and recruit
- ***Partnership outreach*** – help identify organizations worldwide to collaborate with and help us pursue collaboration
- ***Conference Organization*** – become part of the team organizing our worldwide conferences and workshops
- ***Sponsor Outreach*** – help us identify sponsors for TIEMS worldwide activities
- ***TIEMS International Initiatives*** - Participate in TIEMS international initiatives in International Education and Certification.

SUMMARY OF THE TIEMS YEAR 2017 BY TIEMS PRESIDENT

CIVIL PROTECTION WORLDWIDE

TIEMS believes exchange of information and experience and learning from each other are important ways to improve resilience worldwide. TIEMS therefore became a partner with the Global Facility for Disaster Risk Reduction (GFDRR) of the World Bank Group to address the growing need to support civil protection systems' response to disasters in 2017. The focus of this partnership is a Study on the State of Civil Protection in the World on Typologies, Good Practices and Economic Returns.

We believe this study is a fundamentally important one, which can help guide countries with less developed and insufficiently financed civil protection agencies how to focus the development of their civil protection system. It will also help those with well-developed civil protection systems by providing a critical view of their system and operation, to guide improvement and increased efficiency.

TIEMS will work to make the findings and conclusions of this study available worldwide as teaching material, and we will consider its use in the TIEMS TQC Certification Curriculum. The study is expected to be finished by the end of 2018, and TIEMS has invited the World Bank to present the findings, recommendations and conclusions in a Keynote speech at the TIEMS 25th Anniversary and 2018 Annual Conference in Manila 13 – 16 November 2018. Below is a brief description of the study, produced by the World Bank:

The Global Facility for Disaster Risk Reduction (GFDRR) of the World Bank Group is partnering with TIEMS and other organizations worldwide to address the growing need to support civil protection systems' response to disasters.

Hurricane Harvey that recently hit the US territories of Texas and Louisiana causing devastating floods has showed that even the most developed countries are not spared from heavy damages, losses of life, and the many other impacts associated with natural disasters. More and more, natural and manmade disasters are causing around the world a spectrum of destruction and desolation, leaving every year millions of human beings, many disaster-prone countries, and fragile environments, in a complex situation of vulnerability and challenging recovery.

Increasingly, the governments of both developing and developed countries are becoming aware of the need to prepare, respond to, and recover from disasters in a sustainable way, to guarantee safety and the preservation of development gains and trends.

In the wake of this increased awareness, a correlated type of recognition has emerged: the need to increase the capacity of institutions such as civil protection and disaster management systems to respond to

the immediate and long term needs generated by disasters.

The concept of civil protection is well-known by practitioners from the field of disaster risk management and by government officials; yet, civil protection systems around the world suffer from major weaknesses. Introduced for the first time in 1931 in the post-World War I period, civil protection then aimed to protect vulnerable civilian populations, historical monuments and cultural assets from disasters. The concept has evolved over the years becoming "civil defence" or "civil security" in certain areas, and now includes the wider dimension of disaster preparedness.

The main weaknesses of civil protection systems today include the coexistence of diverse typologies and practices of civil protection, based on geographic characteristics, as well as differences in governance structures and levels of development. Another major difficulty is the lack of human, financial, material and technical resources in numerous developing countries. Finally, the marginal use of pre-disaster collaboration between governments and institutions, and the lack of optimal coordination in post-disaster situations remains widespread.

In addition to the afore-mentioned difficulties, there are knowledge gaps concerning the factors that can lead to effective responses, such as understanding of the economic returns of investments in civil protection systems. These remain a major challenge that hinders governments' and international development organizations' capacity to improve their systems.

To address these growing needs and knowledge gaps, the Global Facility for Disaster Risk Reduction (GFDRR) of the World Bank Group is launching a study on the "State of Civil Protection in the World: Typologies, Good Practices and Economic Returns". TIEMS will contribute to the development of the study by providing the expertise from its network of 24 countries, along with specific contributions on the research, education, outreach and awareness-raising needs for international emergency management.

The study is expected to be carried out during the next 18 months, and it will analyse the institutional diversity of civil protection systems and practices, as well as focus on country case studies to identify lessons learnt and good practices. The case studies will be carefully selected to reflect regional diversity and several levels of development. Finally, the study will develop an analysis of the economic returns of investments in civil protection and preparedness. It is expected that the study will provide several outputs useful to support the actions of the diverse network of public, private and civil society actors involved in civil protection systems, including a global population survey measuring the engagement of the communities and their feedback on civil

For more information regarding GFDRR, please visit the website www.gfdrr.org.

TIEMS 2017 EVENTS

TIEMS worldwide events are important meeting points for networking, and discussing relevant topics in Disaster Risk Reduction (DRR). TIEMS arranged several international events last year, and here are some highlights:

The first workshop in India was arranged February 10th, 2017 with the TIEMS India Chapter as host, and President Kailash Gupta leading his team.

The 2017 USA Chapter Annual Conference was arranged June 12 – 16, 2017, at the University of Maine, Orono, Maine, USA, with Professor Dr. George Markowsky as the TIEMS host.

The TIEMS 2017 Annual Conference was arranged in Kyiv, Ukraine, December 4 – 6, 2017, with the TIEMS Ukraine Chapter as host, and President Andre Samberg leading his team.
A list of TIEMS 2017 events is found below:

10 February:

- TIEMS India Chapter Workshop in New Delhi, India

12 – 16 June:

- TIEMS USA Chapter Conference in Orono, Maine, USA

28 – 30 June:

- Co-organizer of the 7th China International Fire Safety Exhibition in Guangzhou, China

July:

- TIEMS Japan Chapter Public Conference in Tokyo, Japan

- Workshop with Inauguration of the TIEMS Philippines Chapter

9 – 11 November:

- Co-organizer of China Southeast Asia & South Asia Fire Safety and Emergency Rescue Technology Expo, Kunming, China

11 – 12 November:

- TIEMS Emergency Medical Committee (TEMC) Annual Conference with the 6th Harvard Medical School BIDMC China Program Forum, Nanjing, China

13 – 15 November:

- TIEMS China Chapter Annual Conference in Chengdu, China

15 – 16 November:

- TIEMS Korea Annual Conference in, Ilsan, Gyunggido, Korea

4 – 6 December

- TIEMS 2017 Annual Conference in Kyiv, Ukraine.

Additional details for some of the conferences follow below.

India:

TIEMS first workshop in India took place 10th February 2017 in at NIDM (National Institute of Disaster Management) premises in New Delhi, with the TIEMS India Chapter as host. The topic of the workshop was « Higher Education in Disaster Management: Opportunities & Challenges". The workshop was co-hosted by NIDM and supported by:

- The Jamsetji Tata School of Disaster Studies, Tata Institute of Social Sciences,
- Ashoka Innovators for Public,
- The Institution of Engineers (India), Rajasthan State Centre, which also provided Workshop Secretariat facilities,
- Integrated Volunteers Network,
- Center for Development and Disaster Management Support Services, and Institution for Disasters, Emergency & Accidents

The workshop was attended by experts from all over India, and the TIEMS President and TIEMS Education, Training and Certification Chair, George Markowsky, represented TIEMS International, and focused their presentations on TIEMS education, training and certification initiatives within international emergency management and disaster response. TIEMS India Chapter host, Kailash Gupta, emphasized in his presentation the need for quick response research in India and its funding.

In the inaugural session, Santosh Kumar, Executive Director of NIDM gave a welcome address and introduced the theme of the Workshop, followed by Kamal Kishore, Member of National Disaster Management Authority, who inaugurated the Workshop by

a video recorded message. Vinod Sharma, Prof. of Disaster Management, Indian Institute of Public Administration presented Higher Education in DRR in India. Before the end of the inaugural session, Sarthak Handa and Ashwin Naik of Ashoka Innovators for Public depicted an Innovation Showcase on "Operation Resilience."

After the inaugural session, the workshop ran three parallel sessions on:

1. Education
2. Research
3. Careers

All presentations were of high quality and followed by engaged discussions, and it showed that India has excellent expertise and experience in emergency management and disaster response.

China:

From November 11th to November 12th 2017, the 2017 TEMC&BHGF International Medical Forum & The 6th Harvard China Program Experience Exchange Conference was successfully held in the Nanjing International Youth Convention Center, hosted by Nanjing Drum Tower Hospital. The event was held with the joint support of the Jiangsu Provincial Commission of Health and Family Planning and Nanjing Municipal Health and Family Planning Commission, and sponsored by The International Emergency Management Society Emergency Medical Committee (TEMC) and the Beijing Huatong Guokang Foundation (BHGF).

The conference invited Mr. K. Harald Drager, Chairman of The International Emergency Management Society and more than 20 foreign experts from top international medical institutions, including Harvard Medical School, Johns Hopkins University School of Medicine, St. Patrick's University Hospital in Ireland and Klinikum Lippe GmbH in Germany. This conference had one main forum and seven sub-forums. The sub-forums were the President Forum, Oncology Forum, Cardiology Forum, Clinical Laboratory Forum, Finance Forum, Critical Care forum and Pharmacy forum. Altogether there were 600 presidents and department directors from all over China present.

With the purpose of "Leading Innovation & Win-win Cooperation ", and centering on the topic of emergency health management, chronic disease management and hospital operations and management, participants partook in in-depth exchanges and discussions. At the meeting, Harvard Medical School, TEMC & BHGF and Nanjing Drum Tower Hospital formally signed a memorandum of tripartite cooperation. Xi'an City, Shaanxi Province was selected as the host city of the 2018 Forum, and nine series of international learning program reports were issued.

Professor David Roberts, Dean of External Education of Harvard Medical School, Director Chen Ran of The International Emergency Management Society Emergency Medical Committee (TEMC) and President Han Guangshu from Nanjing Drum Tower Hospital attended the signing ceremony. The three parties will start strategic cooperation in talent cultivation, discipline construction and clinical research based on the principle of mutual equality and win-win cooperation.

At the meeting, K.Harald Drager, President of The International Emergency Management Society, David Roberts, Dean of External Education at Harvard Medical School, Hunter Young, Medical Director of Johns Hopkins University Medical Center, Han Guangshu, President of Drum Tower Hospital, Paul Gilligan, CEO of St. Patrick's University Hospital in Ireland, Wei Xiaochun, Director of Health and Family Planning Commission of Shanxi Province, and Helmut Middeke, president of Klinikum Lippe GmbH in Germany delivered speeches and shared

their experience focusing on *Public Health Emergencies of International Concern, Leveraging Education Across the Learning Health System, An Innovative Approach to Chronic Disease Management, Humanity Enlightening the Dream, Brilliance Making Excellence, St Patrick's Mental Health Services in Ireland - A Changing Trip to Rehabilitation, International Leader in Human Rights-Based Mental Health Services, Quality Resources Helps Promote Primary Health Care, German health system and Klinikum Lippe GmbH Management Overview*, respectively.

Ukraine:

The 24th TIEMS Annual Conference and Assembly 2017 took place in Kiev in Ukraine on December 4-7, 2017. About 100 experts from North and South Americas, Europe and Asia participated three days in the technical sessions and after the end of the conference attended the guided tours to the Chernobyl exclusion zone: the Chernobyl nuclear power station and the Duga-3 radar installation which is known in the West as the Russian Woodpecker (Chernobyl-2) as well as the medical and emergency center in Kiev. There were 62 oral and poster presentations including a small exhibition. Experts exchanged the latest scientific results and other information about emergency management, disaster risk reduction and the increasing environmental risks in the Donbas region in the Eastern Ukraine.

The topics of the conference were:

- Information and Communications Technology and Geographical Information Systems
- Solutions for Civil Protection and Emergency Management
- Geomatics in Education for Civil Protection and Emergency Management
- Environmental Risk Assessment by Means of Remote Sensing
- Peacebuilding in Ukraine
- Management of Abounded Areas of Long-term Man-made Disasters
- International Project Funding Mechanisms

Keynote speakers were:

- Ms. Oleksanda CHURKINA, Deputy Minister of Ministry of Social Affairs of Ukraine
- Mr. Oleksandr SUKHODOLIA, Head of Department of Energy Security and Technogenic Safety, National Institute for Strategic Studies of Ukraine under the President of Ukraine - Mr. Vitaly PETRUK, Head of The State Agency of Ukraine on Exclusion Zone Management, Ministry of Ecology and Natural Resources (Ukraine)
- Mr. Artur AYVAZOV, UNICEF's Director for Social Policy in Ukraine
- Mr. Mark BATTLE, Head of UN Water and Sanitation Cluster (presentation “Water Risk Assessment in Donbass”)
- Mr. Rustam Pulatov, Component Leader of Community Security and Social Cohesion of UNDP Recovery and Peacebuilding in Ukraine (“Community Security in Pro-longed”)
- Mr. Dmytro AVERIN, Project manager, The Organization for Security and Co-operation in Europe OSCE (presentation “Assessment of Environmental Damage in Eastern Ukraine by means of Donbass Environment Information System DEIS”)

The conference covered all aspects related to Emergency Management, Cyber Risk Analysis, Virtual Training Means for First Responders and Resilience.

There were six workshops:

- Leveraging TIEMS Disaster Management Expertise to Strengthen Local Community

- Resilience through Global DRR Platform, Web-based Technologies for Disaster Risk Reduction
- Assessments of Vulnerabilities of Cyber in Power Grids and Critical Infrastructure: Case Ukraine 2015 – 2017
- EU-funded Horizon 2020 project "TARGET"
- EU-funded Horizon 2020 project "Driving Innovation In Crisis Management For European Resilience (Driver+)"
- TIEMS QIEDM = Qualifications in International Emergency and Disaster Management
- World Bank Study On Typologies And Good Practices Of Civil Protection Systems In The World

The conference was co-organized by:

- The National Institute for Strategic Studies under the President of Ukraine (Ukraine)
- The State Emergency Service of Ukraine (Ukraine)
- Ukrainian Academy of Cyber Security (UASC) (Ukraine)
- Department of Cyber Security, National Academy of Internal Affairs of Ukraine, Ministry of Internal Affairs (Ukraine)
- The State Agency of Ukraine on Exclusion Zone Management, Ministry of Ecology and Natural Resources (Ukraine)

The following institutions supported the conference:

- The United Nations Children's Fund (UNICEF) in Ukraine
- The United Nations Development Programmes (UNDP) in Ukraine
- The Organization for Security and Co-operation in Europe (OSCE) in Ukraine
- Department of Emergency Medical Care and Disaster Medicine, Ministry of Healthcare of Ukraine
- The Rotary Club of Eastern Helsinki (Finland)
- i4-Flame OÜ (Estonia)
- Procon Ltd. (Bulgaria)
- Hirain Technology Group (China)
- Lviv University of Life Safety (Ukraine)
- EU-funded Horizon 2020 project TARGET
- EU-funded Horizon 2020 project DRIVER+
- 4-star hotel "Ukraine" (Kyiv, Ukraine)

TIEMS RESEARCH, TECHNOLOGY AND DEVELOPMENT (RTD) ACTIVITIES

TIEMS was in 2017 partner in two EU projects described below.

The **HERACLES** EU project's main objective is to design, validate and promote responsive systems/solutions for effective resilience of cultural heritage sites against climate change effects, considering as a mandatory premise an holistic, multidisciplinary approach through the involvement of different expertise.

This will be operationally pursued with the development of a system exploiting an ICT platform able to collect and integrate multisource information in order to effectively provide complete and updated situational awareness and support decision for innovative measurements improving cultural heritage site resilience, including new solutions for maintenance and conservation.

TIEMS participates in the project with a team of four TIEMS members, from Croatia, USA and Norway, and is responsible for adding value with expertise on end user requirements, risk and vulnerability analysis, guidelines and datasheets for virtual training courses, risk management procedures for end users, demonstration and result analysis, dissemination and communication and an impact, exploitation and business model.

The **HERACLES** project has three cultural test sites, the medieval city of Gubbio in Italy, and two cultural sites in Crete: the Minoan Knossos Palace and the Heraklion Fortress. **HERACLES** is a fascinating project with high ambitions, and it shows that emergency management and disaster response expertise is of importance in different settings.

The **ASSET** project is about epidemics and pandemics and 2017 was its fourth and last year. One important and exciting task in the **ASSET** project was citizen consultations, performed at the same time in 8 European cities. The response to questions put forward to more than 400 randomly selected citizens were summed up and statistically presented. The **ASSET** citizen consultations show that citizens across Europe are willing to follow the advice from health authorities. In an emergency situation, citizens even supported the infringement of individual rights for the collective good.

However, citizens emphasized that public health authorities must communicate in an honest and transparent matter. Citizens do not want to be protected from the realities of a situation; rather they want to know what the uncertainties and risks are. Participants in the meeting urged general practitioners (GPs) and authorities to increase their online presence and to engage in dialogue with their publics. The public desires clear and updated information on vaccination and pregnancy and believe that improved communication and dialogue can restore trust and build better relationships between health authorities and publics. Finally, citizens in the meetings expressed a desire for opportunities to provide input for policy development and action in the case of epidemic or pandemic crisis.

The findings of these consultations underline that participatory governance is the way forward, not only in public health, but for authorities in most settings in order to build trust towards the public.

The **ASSET** EU project was finalized in 2017, with a brokerage event in Rome 30 – 31 October this year.

TIEMS is invited to participate in new proposals of RTD projects each year, and in 2018 TIEMS is participating in three proposals. TIEMS international network and presence with chapters in 14 countries makes TIEMS an attractive partner for RTD projects in EU.

NEW VOLUNTEERS IN TIEMS

The TIEMS International Group of Experts (TIGE), consisting of all TIEMS Directors, Officers and TIEMS Chapter Board members, has grown with the addition of new Philippines Chapter founding members and recruitment of new TIEMS Board members. The TIGE had at the end of 2017 102 members from 25 countries. The list of TIGE members, including names, positions, and fields of expertise, is found at the following link: TIGE.

TIEMS has not had any representation in Latin America and Caribbean (LAC) since 2010, when an earthquake struck Chile, and made it impossible to hold our planned workshop there and continue our just started operation in LAC. I am therefore very happy to announce that Diego Fernandez Otegui has been appointed TIEMS Regional Officer for LAC.

He will be reaching out to the emergency management community in LAC, and we hope to see increased activity, new TIEMS chapters, and the first TIEMS event in LAC very soon.

THE TIEMS ACADEMY

The goals of the TIEMS Academy are:

- *Educating the Public*
- *Educating Children*
- *Educating Officials*
- *Improving Preparedness*
- *Offering Courses and Training*
- *Helping Certify Expertise*
- *Building and Distributing Emergency Management Tools.*

TIEMS Chair of TIEMS Academy is George Markowsky, and TIEMS Academy will be developed in close cooperation with TIEMS QIEDM Certification needs, and also with guidance and input from TIEMS Chapters.
The TIEMS Academy present objectives are:

- Develop an internationally shared understanding of emergency management elements, qualifications, and terminology
- Help students find and connect with useful live and online educational resources
- Make increasing amounts of emergency management knowledge available online, especially vulnerable societies
- Provide a platform to share critical lessons learned from disasters and emergencies
- Create an eLearning and Certification platform that will foster, across the international community, a shared, common understanding of emergency management elements, standards, and terminology
- Establish a directory of educational resources, described within a common framework, including live and online degree programs, courses, workshops, and knowledge bases
- Create an online portal that will make emergency management educational resources, from established educational institutions and initiatives, broadly available to students worldwide

The TIEMS Academy will start out using FreeConferenceCall.com as its platform for eLearning. FreeConferenceCall.com makes it easy to have online courses and meetings with up to 1,000 simultaneous participants.

http://www.freeconferencecall.com/

TIEMS TQC CERTIFICATION

TIEMS TQC Certification has been conceptulized during 2017 – 2018, and will be presented and discussed in a workshop in TIEMS 25th Anniversary and 2018 Annual Conference in Manila in November 2018.

As a background for developing the certification, TIEMS has done a Survey, to find out if such a certification as TIEMS TQC Certification, would be welcome in the international emergency management and disaster response community, and what the content and requirements of such a certification should be.

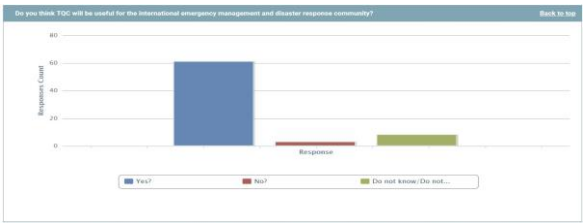
We have summed up the responses, and there is an overwhelming positive support from those who have taken the Survey. 72 experts coming from 33 countries ; Norway, Iraq, Nepal, Jordan, South Korea, USA, Italy, China, Ukraine, Australia, Croatia, Russia, UK, Canada, Japan, Finland, Philippines, Czech Republic, India, Nigeria, Spain, Argentina, France, Oman, New Zealand, Slovakia, Germany, Netherlands, South Africa, Switzerland, Kosovo and Turkey, and Greece.

In the following is shown some statistics and the key responses of TIEMS TQC Survey.

Introduction and Question in the Survey

With an increasing number of disasters worldwide, resulting in more international collaboration and support to disaster stricken areas, the need for more education and training in emergency and disaster management seems evident. TIEMS believes that it is important to raise the awareness of the competencies needed in emergency and disaster management, and to support those participating in these activities and operations in acquiring those competencies. An international certification can be one

way to improve the qualifications and competencies of these experts. TIEMS has worked for several years on a concept to develop a certification of Qualifications in International Emergency and Disaster Management (QIEDM), named TIEMS QIEDM Certification or TQC. In the following questions, we seek your opinion and advice on the framework and content of such a certification.



Yes: 61 (84.72 %), No: 3 (4.17 %), Do not know/Do
Not want to answer this question: 8 (11.11 %)
Total responses: 72

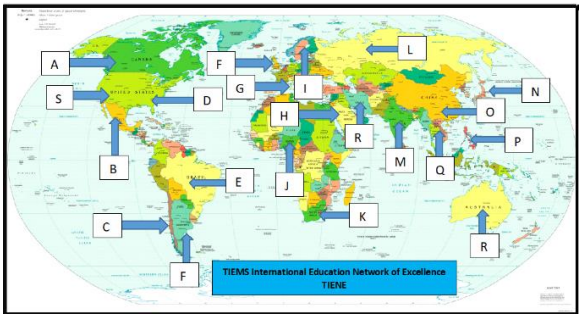
Their main reasons for support of TQC

- Although there are several higher qualifications in Emergency Management, they mainly focus on specific countries' requirements rather than an international focus.
- One of the most significant problems in the emergency management space, at least at the international level, is the diversity of opinions and schools of thought about what are the necessary and basic skills and capacities that EM should have. The certificate will definitely facilitate the discussion and will allow for the training of better and more efficient EM related personnel.
- A globally recognised certification will help professionals of varied backgrounds in disaster/emergency management have a better understanding of each other's competencies.
- The certification will help worldwide knowledge and skills sharing, communication among experts and responsible organizations, and building informal networks capable of fast activation and deployment.
- As TIEMS gathers together emergency management experts from all over the world, it boasts experiences of a wide array of best practices tested globally, in different settings and under different conditions, and this pool of experiences is precious to draw from in acknowledging and assessing recognized and accepted practices.
- To be more educated and learn from each other experiences from disaster relief units and commanders. Exchange all potential knowledge about all crisis situations, inclusive in the international scale.
- A certification can be useful to ensure a minimum standard in the qualifications.
- Harmonizing ways of working is important and global standards improve this.
- There are many local aspects of disasters and emergency situations. However, it is important to dare best practices. This certification will allow for it.
- With the diversity of practitioners, any independent international recognition of skills and competencies is useful in vetting candidates for jobs and missions.
- There should be unified set of skills and knowledge required for management of emergency situations as those can happen across the borders of the countries. In this situation cooperation between nations will be required.
- Helps to put international standardization and increasing cooperation.
- Like credentialing, a certification obtained via a rigorous process from an organization with validated international standing or renown, is a positive indicator of a person's knowledge base and capabilities.

Based on the Survey results, TIEMS will develop a TQC Curriculum, comprising the competences we believe the candidates of this certification should have, and the below figure illustrates the fields of competence to be included.

TIEMS is fully aware of the many existing local certification schemes around the world, teaching some of the courses, which will be included in the TQC Curriculum. TIEMS extends its invitation to those universities and training institutions for cooperation and being a partner in TIEMS International Education Network of Excellence (TIENE), joining forces for this global initiative, as illustrated below. TIEMS TQC Certification is not competing with local certification schemes, but intended to be an international add on certification to experts in the emergency management and disaster response community.

The following illustration does not point to any specific university or training institution in any country, but illustrates that TIEMS are aiming for a worldwide network of cooperative institutions, in partnership with TIEMS in this initiative.



Education Courses:

- The course curriculum will be comprised of both theoretical and practical courses and hands-on training
- Courses will be offered by TIEMS in cooperation with Universities and Training Institutions worldwide through TIEMS Academy
- Participants must receive a passing grade on a certification exam
- TIEMS Chapters will be responsible for adding local/national competences

TQC Certification Objectives:

- Availability Globally
- Web-based On-Line
- Low Cost
- A Common Understanding of Emergency and Disaster Management
- The Common Language is English, but local language adaption in TIEMS Chapter Countries
- Lessons Learned Focus
- State-of-the-Art and Up-to-Date.

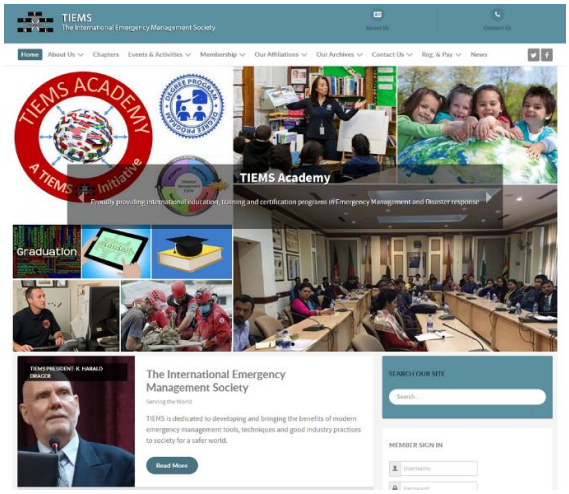
The first MOU agreement of the TIENE network will be signed in Manila during TIEMS 25th Anniversary and 2018 Annual Conference.

TIEMS believes that education and training is the key to improved resilience worldwide, and TIEMS promotes the TQC Curriculum as an internationally shared understanding of emergency management elements, qualifications, and terminology, which will

be the basis for TQC Certification. TIEMS believes this will increase the focus on the emergency management and disaster response profession and improve the fundament for further international cooperation in this field.

TIEMS NEW WEB-SITE

A TIEMS new web-site became operational 12th June 2017:



See: http://www.tiems.org

TIEMS NEWSLETTERS

TIEMS issued five newsletters in 2017, three regular newsletters and two special issues: (Click on the pictures and get access to the full newsletter)

Regular Newsletter May 2017

Regular Newsletter September 2017

Regular Newsletter December 2017

Special Edition April 2017

Special Edition October 2017


THE INTERNATIONAL EMERGENCY MANAGEMENT SOCIETY
Newsletter Special Edition

TIEMS MEMBERSHIP

Membership, donation packages and journals available through TIEMS membership are as follows:

- Standard Member
- Standard Member "Transition Economy Country"
- Professional Certified Member
- Student Member
- Institutional Member
- Platinum Donation
- Gold Donation
- Silver Donation
- Bronze Donation
- International Journal of Emergency Management
- International Journal of Risk Assessment and Management

In addition, local chapter membership is available, which is governed by each chapter, within TIEMS guidelines.

Details on TIEMS membership can be found at:

http://www.tiems.info/index.php/membership/become-a-member

TIEMS SECRETARIAT IN BRUSSELS

The TIEMS Secretariat in Brussels, Belgium started its operation for TIEMS 1st November 2010. Most administrative TIEMS activities have been transferred to the Secretariat and the board members have more time to concentrate on the long term planning of the development of TIEMS. The Secretariat office can be found at the following address and phone, fax and e-mails:

TIEMS Secretariat
Rue Des Deux Eglises 39, 1000 Brussels, Belgium
Phone: +32 2286 8038
Fax: +32 2286 8039
E-mails:
secretariat@tiems.info

TIEMS ASIA SECRETARIAT

The activity level has increased considerably in TIEMS China Chapter, and the TIEMS Board approved at the end of 2013 the establishment of a TIEMS Asia Secretariat in Beijing. First of all, it will take care of the increased TIEMS activity in China, with workshops and conferences already planned in 2017. In addition, it will also serve as the liaison with the International Emergency Industry Alliance on Technological Innovation and Strategy:

http://www.tiems.info/images/TIEMS%202014%20Chinese%20Industrial%20Alliance%20Group.pdf

The TIEMS Asia Secretariat is also prepared to assist other chapters in Asia and worldwide with professional administrative and expert assistance in emergency management and disaster response.

TIEMS FINANCIAL SITUATION

Accomplishing TIEMS's mission on a limited budget is a challenge, as with many other non-profit and international NGO's. However, volunteers working for TIEMS around the world in TIEMS chapters, recruiting members and sponsors and arranging events have made it possible to arrange many events around the world, as well as establish and maintain a TIEMS Secretariat in Brussels, which started its

operation at the end of 2010, and has now been in operation more than 7 years. Having professional administration and legal advice at a permanent registered address for TIEMS has proven worthwhile and beneficial. The Secretariat is the primary regular budget item for the society financed by fees collected by the society.

TIEMS participation in RTD projects has had a good impact on TIEMS financial situation, as well as being a benefit for its members. They can apply for being on TIEMS team in RTD projects where TIEMS participate, given that they fulfill the projects qualifications requirements.

TIEMS MEMBERS, OFFICERS AND DIRECTORS

Of course, the main assets of TIEMS are its members, officers, directors, and TIEMS Chapter board members (See TIGE). They contribute their expertise and volunteer their time to develop and promote the society worldwide, and carry out activities on TIEMS behalf. Members of TIEMS Board of Directors are elected at the Annual General Meeting (AGM), which takes place at the TIEMS Annual Conference every year. The delegates to the AGM are TIEMS members, and they elect Directors and Officers, and vote on decisions proposed by TIEMS Board.

The Chapters elect their own Boards, and when the TIEMS Board of Directors wants to focus on a special task, a TIEMS Officer is appointed by the TIEMS Board to lead this task and report to the Board.

I would like to thank them all for the work they do, and their loyalty to TIEMS and its mission. Without them and their efforts, TIEMS could not exist.

TIEMS FUTURE PLANS

TIEMS progress is in line with the TIEMS 5 year plan agreed by the Board of Directors at the end of 2012, which set concrete goals. Our success sends a message to TIEMS members and the international emergency management community that TIEMS has a promising future, in which all with interest in emergency and disaster management can participate, and work together towards the TIEMS goal of contributing to more resilient societies worldwide.

TIEMS is now looking into a new 5 year horizon and will set concrete goals for the 5 year period 2018 – 2023 during TIEMS 25th Anniversary and 2018 Annual Conference in Manila in November this year.

Oslo 27th September 2018
K. Harald Drager
TIEMS President

Welcome to

TIEMS 25TH ANNIVERSARY *(1993 - 2018)* CONFERENCE

www.tiems.org

MANILA, PHILIPPINES, November 13 - 16, 2018

At

Pontifical and Royal
UNIVERSITY OF SANTO TOMAS
THE CATHOLIC UNIVERSITY OF THE PHILIPPINES

Sponsors

Gold

恒润博雅
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DORAPOWER

At the University of Santo Tomas College of Nursing

www.ust.edu.ph/nursing

Welcome to Manila, Host City of TIEMS 25th Anniversary and 2018 Annual

Welcome to TIEMS 25th Anniversary and 2018 Annual Conference from TIEMS President

In a time of increasing number and severity of disasters, global cooperation and coordination are more vital than ever before. 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 global and local important topics and issues in emergency and crisis management. TIEMS 2018 Annual Conference in Manila, Philippines, is also TIEMS 25th Anniversary, and since I have been with the organization since its establishment in Washington DC. In 1993, it is with great pleasure to observe that TIEMS has grown to a "mature" worldwide recognized organization. The 2018 Annual conference is focusing on local and international important issues in emergency management and crisis response. This should form a good meeting place between the locals and international experts, and give all the opportunity to learn from each other and exchange experiences and find better solutions, which can improve local and international preparedness for disastrous events.

A warm welcome from the President of the Philippines is an encouraging support of TIEMS work worldwide, and TIEMS local organizing committee in Manila is the host of this conference. The members of this committee; Angeli Medina, Elizabeth D. Cortez, Judith G. Dolot, Jaime Almora, Genecar Pe Benito and Kathleen Chan have done an excellent job with preparing the conference, and I like to thank them all for the commitment and dedication to make an excellent conference. This year's TIEMS conference is a joint conference with the third UST Conference on Disaster Risk Reduction and Climate Change, and take place at University of Santo Tomas in Manila. Both international and local presentations of high quality form up a comprehensive program comprising 4 workshops and 50 oral presentations, and the event is quite international with contributions of speakers from 15 countries. A guided tour to the Office of Civil Defense – Disaster Risk Reduction Management Council after the technical program should also be something of high interest to all delegates. The above technical program integrated with relaxing social events, showing Philippines culture on its best, will certainly make the 4 days at the joint USTCN &TIEMS 2018 annual conference in Manila a memorable event.

The papers will be included in TIEMS 2018 Annual Conference Proceedings, and full papers will be peer reviewed and published in an international recognized journal. Many thanks go to Meen Chhetri, Chair of TIEMS Paper Review Committee, for reviewing all papers and giving good advice to the authors, seeing to it that all papers are of high quality. Many thanks also goes to Snjezana Knezic for putting together the conference proceedings together with Meen Chhetri. Also great thanks go to the conference program committee and the volunteers, as well as welcome and keynote speakers and exhibitors. We have 4 Chinese company sponsors for the conference, which with their generous sponsorship has made this conference possible. It has been great to work with such a professional and dedicated team of professionals. I welcome all participants to the joint USTCN & TIEMS 2018 Annual Conference in Manila, Philippines, 13 - 16 November 2018.

Oslo 19th October 2018

K. Harald Drager
TIEMS President

TIEMS Celebrates its 25th Anniversary in May 2018

1993

TIEMS was established in Washington DC, USA as The International Emergency Management and Engineering Society (TIEMES), and the society was registered in Dallas, Texas, USA, as a non-profit organisation. Among the group of founders were Jim Sullivan, USA (First President), K. Harald Drager, Norway (First Vice President), Suleyman Tufecki, USA (First Treasurer), Jean Luc Wybo (Board Member), France and Ross Newkirk (Board Member), Canada.

1996

The Society was reorganized and changed its name to The International Emergency Management Society (TIEMS) and its registration was moved to Florida, USA

2003

The Society's registration was moved to Zürich, Switzerland in order to be close to other international organisations having operational centres in Switzerland.

2006

TIEMS moved to Belgium, where TIEMS today is registered as an International, Independent and Not for Profit NGO.

More of TIEMS history can be found on TIEMS web-site at:

http://www.tiems.info/index.php/about-us/tiems-history

TIEMS 2018 Annual Conference Topics

In an interconnected and interdependent world, coordination and collaboration between cities, provincial, national, international agencies and non-governmental organizations have become critical to the promotion of disaster management, disaster risk reduction and climate change mitigation. The TIEMS 2018 Annual Conference will explore best practices and emerging technologies, to facilitate the coordination of valuable resources and urban planning strategies to build resilient communities.

The main topic is:

DISASTER RISK REDUCTION AND CLIMATE CHANGE MITIGATION
Plans, Preparation, & Collaborative Strategies.

Presentations from International and Philippines experts will provide valuable insights and the interactive workshops will create an exceptional opportunity to discuss national and international perspective.

List of Topics (not limited to)

- Disaster Risk Reduction
- Climate change
- Education in crisis and emergency management
- Technology for first responders
- Volunteers in disaster relief and armed conflict zones
- Human factors and organizational aspects for disaster-resilient societies
- Best practices
- Standards & Certification

International Program Committee

- Conference Chair - **Kåre Harald DRAGER**, Professor, President of The International Emergency Management Society TIEMS (Norway)
- Co-chair - **Andre SAMBERG**, Professor of Practice, Head of TIEMS Mission to Ukraine (Finland)
- **Guosheng QU**, Professor, Director, Research Center of Digital Disaster Mitigation and Emergency Management (China)
- **Thomas ROBERTSON**, TIEMS Regional Director for North America
- **Jaroslav PEJCOCH**, Chairman of the Board of T-Soft a.s. (Czech Republic)
- **Sandro BOLOGNA**, TIEMS International Program Committee Chair, Past President of the Italian Association of Critical Infrastructure Experts AIIC (Italy)
- **Meen Bahadur Poudyal CHHETRI**, Professor, President of Nepal Center for Disaster Management and Director of the Department of Disaster Management of Dhading District, Under Secretary of the Ministry of Home Affairs, TIEMS Paper Review Committee Chair (Nepal)
- **Jean-Paul MONET**, Lieutenant-colonel, Head of Fire District, Chief of Division of Bouches-du-Rhône Fire Brigade (France)
- **Snježana KNEZIĆ**, Professor, University of Split, Faculty of Civil Engineering, Architecture and Geodesy (Croatia)
- **Young Jai LEE**, Professor, Dongguk University, and Principle Investigator of Global DRR Technology Platform (South Korea)
- **George MARKOWSKY**, Professor, Missouri University of Science and Technology, Chair of TIEMS Academy (USA)
- **Elizabeth D. CORTEZ**, Assistant Professor, University of Santo Tomas Manila (Philippines)
- **Angeli MEDINA**, TIEMS Philippines President (Honorary)

Local Organizing Committee

- **Angeli Medina**, MPA, RN, CHPCP, CBCP, CEN, Nurse Educator, NYHHS, NY
- Asst. Prof. **Elizabeth D. Cortez**, MAN, RN, Chair International Relations and Programs UST College of Nursing
- Lt. Col. **Judith G. Dolot**, Deputy Director, SSG-II, Bangko Sentral ng Pilipinas
- Dr. **Jaime Almora**, Founder, Almora General Hospital, BOD, PHA
- Asst. Prof. **Genecar Pe Benito**, MAN, RN, International Relations and Programs, UST College of Nursing
- Asst. Prof. **Kathleen Chan**, MAN, RN

Publication

TIEMS AC2018 presentations will be published in the TIEMS Open Access Proceedings on the TIEMS website, *www.tiems.org* . Selected papers will be invited for peer-review publishing in an international journal.

Conference Program Overview

TIEMS 25th ANNIVERSARY & 2018 ANNUAL CONFERENCE CONCEPT PROGRAM

Monday 12th November	Tuesday 13th November	Wednesday 14th November	Thursday 15th November	Friday 16th November
Arrival of Delegates Reception and Poster Session and Registration Get Together Networking	Pre- Conference 3rd USTCN Conference on DRR and Climate Change Program	Registration	Registration	Registration
		Welcome & Introduction of the Workshops	Welcome & Opening	Technical Session
		Workshop 1 DRR Communication Platform TIEMS Korea Chapter	Plenary Sessions 1 Keynote Speakers	
		Coffee Break with visit to Posters & Exhibition		
		Workshop 2 Simulation in DRR The Hirain Company	Technical Session	Plenary Session 2 Keynote Speakers
			TIEMS Annual General Meeting	Summary & Conclusions
		Lunch with visit to Posters & Exhibition		Bus Tour with Box Lunch
		Workshop 3 TIEMS TQC Certification TIEMS	Technical Session	Visit to Office of Civil Defense-National Disaster Risk Reduction Management Council (OCD-NDRRMC) Emergency Operations Center & Earthquake Center
		Coffee Break with visit to Posters & Exhibition		
		Workshop 4 Industry Presentations Exhibiting Companies	Technical Session	
		Welcome Reception	Gala Dinner	

WELCOME MESSAGE FROM THE PRESIDENT OF THE PHILIPPINES

MALACAÑAN PALACE
MANILA

MESSAGE

My warmest greetings to **The International Emergency Management Society** as it holds its **25th Annual Conference on Disaster Risk Reduction and Climate Change Mitigation**.

In recent years, our nation has witnessed and experienced some of the worst calamities recorded in history, testing our people's unity in times of tragedy and proving our ability to smile in the face of adversity.

With a wide scope of professionals and industry leaders in attendance, this gathering is a vital opportunity to learn about the latest technical and operational methodologies in global emergency and disaster management. May today's activities further accelerate the progress of your sector and improve society's competence to respond to and recover from natural and man-made disasters.

I look forward to the solutions and innovations this conference will bring as we collectively address climate change and engender a culture of safety, preparedness and resilience in our communities.

I wish you all a successful and productive event.

RODRIGO ROA DUTERTE

MANILA
14 November 2018

THE PRESIDENT OF THE PHILIPPINES

University of Santo Tomas
OFFICE OF THE RECTOR

SOUVENIR PROGRAM MESSAGE

TIEMS Annual Conference 2018

Fortuitous events which come in the form of catastrophes and various kinds of disasters, whether they are man-made or caused by nature, usually happen when we least expect them. This has been proven by the number of actual cases and reports that show people's unpreparedness in handling and managing disaster. This is precisely the reason why many organizations today, particularly higher learning institutions, establish teams composed of administrators, faculty, support staff, and volunteer students who are given the task to assist in managing disaster. The University of Santo Tomas has formed its own Disaster Management Team whose members are responsible for holding disaster awareness seminar-workshops as well as assist local government efforts in holding drills and perform its mandate to properly address disasters.

On November 14-16, 2018, the International Emergency Management Society (TIEMS) in collaboration with the UST College of Nursing will be holding its 2018 National Conference on Disaster Risk Reduction and Climate Change Mitigation: Plans, Preparation and Collaborative Strategies at the Grand Ballroom of the Blessed Buenaventura G. Paredes O.P. Building, University of Santo Tomas. This conference is both very timely and relevant since it is important that every individual has the knowledge and skill to manage crisis especially now that our contemporary world is threatened by climate change which can cause natural calamities that can ultimately endanger human lives. This effort by TIEMS and the UST College of Nursing is indeed commendable for it is about time that everyone is ready to rise up to the occasion when the need arises. I also take this opportunity to welcome all the participants of this conference to the University of Santo Tomas and may this noteworthy endeavor inspire us to be always prepared in times of crisis.

FR. HERMINIO V. DAGOHOY, O.P.
Rector

Mailing Address: Second Floor, Main Building, España, Manila 1015 Philippines
Telephone Numbers: 632-731-3123 / 632-406-1611 local 8210/8573 Fax Number: 632-732-7486 Email Address: rector@ust.edu.ph

WELCOME MESSAGE FROM THE HOST OF THE CONFERENCE

Dear TIEMS Colleagues,

On behalf of the University of Santo Tomas College of Nursing (USTCN), it gives us the greatest honor and pleasure to invite you to attend the 2018 The International Emergency Management Society (TIEMS) Annual Conference to be held in Manila, Philippines at the University of Santo Tomas (UST), Thomasian Alumni Center, Buenaventura Garcia Paredes, O.P. Building from November 14-16, 2018. A pre-conference on Disaster Risk Reduction and Climate Change Mitigation, sponsored by USTCN will be held at the UST College of Medicine Auditorium on November 13, 2018. We are very excited to be hosting this great conference on "Disaster Risk Reduction and Climate Change Mitigation: Plans, Preparation & Collaborative Strategies." We hope to follow the successful footsteps of the TIEMS conferences in San Diego, California in 2016 and Kiev, Ukraine in 2017.

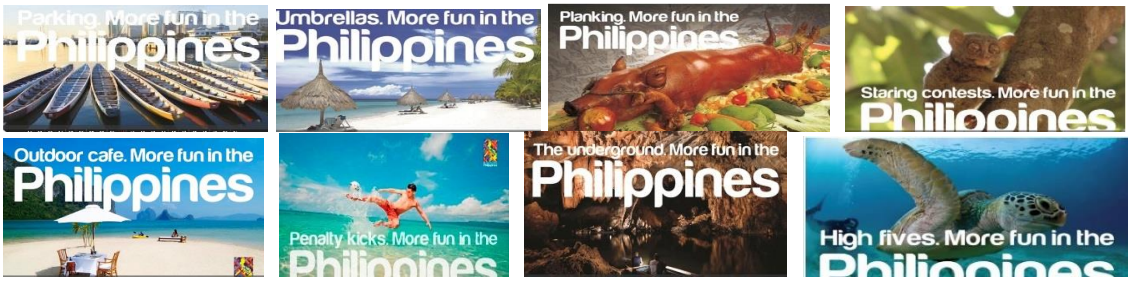
K. Harald Drager, TIEMS President has developed a vigorous TIEMS Local and International Organizing Committees consisting of outstanding USTCN International Relations Team and TIEMS Board members from Norway, China, USA, Croatia, Czech Republic, South Korea, Italy, Iraq, France, Australia, Canada, Japan, Russia, Philippines, UK, Argentina and Nepal. The TIEMS program committee is planning an excellent spectrum of topics ranging from disaster risk reduction platform, climate change, earthquake, TQC certification, technical sessions, to World Bank global study on civil protection.

The members of the TIEMS organizing committee in Manila are very proud and privileged to be hosting the 2018 TIEMS Annual Conference and look forward to welcoming you to our city and country. The Philippines is one of the largest English speaking countries in the world. It has a rich history combining Asian, European, and American influences. The Philippines is a vibrant place with hospitable people throughout 7,500 to 7641 islands depending on it's high or low tides.

Please save the date for the 2018 TIEMS Conference on November 13-16, 2018, so you may network with your colleagues in what we hope to be a fabulous conference.
Sincerely,

Angeli Medina, MPA, RN, CHPCP, CBCP, CEN
Co-Host, TIEMS Annual Conference, Manila, Philippines

(Images from Philippines Department of Tourism)




TIEMS
The International Emergency Management Society
EVACUATION ROUTE
USTCN & TIEMS Conference
TIEMS 25th Anniversary & 2018 Annual Conference
Manila 13 - 16 November 2018
Final Program
Sponsors:
恒润博雅
HIRAIN-BEST
Xianhang
HAIDEXIN
東方核芯力
DORAPOWER
Taking Place at:
Pontifical and Royal
UNIVERSITY OF SANTO TOMAS
THE CATHOLIC UNIVERSITY OF THE PHILIPPINES

USTCN/TIEMS 2018 Manila Conference

PROGRAM DAY 1 - TUESDAY NOVEMBER 13, 2018 The Third USTCN Conference on Disaster Risk Reduction and Climate Change REGISTRATION FROM 0700	
07:45 - 08:00	*Invocation, National Anthem & Welcome Remarks* Rev. Fr. Julius Paul C. Factora, RN, OP, JCD *Regent, UST College of Nursing*
08:00 - 08:30	*"Climate Change Mitigation"* **Honorable Secretary Manny De Guzman** *Secretary, Climate Change Commission*
8:30 - 09:00	*"DRR & Climate Change"* Usec/Dr. Philip Francisco U. Dy *Chief of Staff, Office of the Philippine Vice President*
09:00 - 10:30	The First Panel Discussion 09:00 - 09:25: *"Philippines Public Safety"* Ret. General/Dr. Ricardo De Leon *President, Philippine Public Safety College* 09:25 - 09:50: *"New Disaster Management Paradigm"* Dr. Francisco A. Magno *Director, Jesse M. Robredo Institute of Local Governance, De La Salle University* 09:50 - 10:15: *"Leadership in Disaster Management"* Professor/Dr. Ralph Brower *Florida State University* 10:15 - 10:30: Questions & Answers
10:30 - 12:00	The Second Panel of Discussion 10:30 - 10:55: *"The Philippines' Current Strategies in Disaster Risk Reduction & Climate Change"* Honorable Undersecretary/ Dr. Renato Solidum Jr. *Usec, Disaster Risk Reduction and Climate Change Adaptation - DOST* 10:55 - 11:20: *"Civil Protection During Disasters"* Director Susana Juangco, MPH, RN *Capacity Building and Training Service, Office of Civil Defense - NDRRMC* 11:20 - 11:45: *"Mutual Assistance Agreement & Healthcare Continuity Reserve Corps (HCRC)"* Dr. Jaime Almora, *Founder of Almora General Hospital, BOD, PHA* Co-Presenter: Angeli Medina MPA, RN, CHPCP, CBCP, CEN 11:45 - 12:00: Questions & Answers
12:00-13:00	LUNCH BREAK

USTCN/TIEMS 2018 Manila Conference

13:00 - 14:55		**The Third Panel Discussion**
	13:00- 13:25:	*"U.S. DRR Efforts in the Philippines"* Mr. Joe Curry, Regional Advisor *USAID Office of Foreign Disaster Assistance United States Embassy*
	13:25 - 13:50:	*"Zero Casualty, DRR and Climate Change"* Cedric D. Daep Ph.D. *Department Head, Albay Public Safety & Emergency Management Office/ Executive Director, Climate Change & Disaster Risk and Management Training Institute*
	13:50 - 14:15:	*"Status of SMD Hospital & Rebuilding Efforts in Malawi City"* Dr. Saffrullah M. Dipatuan *Medical Director, SMD General Hospital, Marawi City & Tindig Marawi Foundation Representative*
	14:15 - 14:40:	Ms. Mayfourth Luneta, Deputy Director *Center for Disaster Preparedness*
	14:40 - 14:55:	Questions & Answers
14:55 – 15:20		UST Choir/ Break
15:20 – 16:30		**The Fourth Panel of Discussions**
	3:20 - 3:40 pm	*"Introduction of TIEMS Annual Conference"* K. Harald Drager *TIEMS President*
	3:40 - 4:00 pm:	*"Emergency Preparedness & Response for Catastrophe"* Dr. Guosheng Qu *TIEMS Vice President*
	4:00 - 4:20 pm:	*"Preserving Cultural Heritage as Climate Changes"* Dr. Thomas V. Robertson *TIEMS Regional Director for North America*
	4:20 - 4:30 pm:	Questions & Answers
16:30 - 1640		*Closing Remarks* Dean Susan N. Maravilla, DNM, RN, *Dean College, USTCN*
1640		*UST Hymn*
16:45		**Finish Day 1**

USTCN/TIEMS 2018 Manila Conference

PROGRAM DAY 2 - WEDNESDAY NOVEMBER 14, 2018 WORKSHOPS REGISTRATION FROM 0800	
09:00 - 09:10	*Welcome & Opening & Workshops Introduction* K. Harald Drager *TIEMS President*
09:10 - 11:00	Workshop 1 *Disaster Risk Reduction (DRR) Communication Platform* *TIEMS Korea Chapter* Workshop Chair: Yejin Kim *Dongguk University, South Korea* Topic Local community resilience, public private partnership Objectives To introduce how local government stakeholders, especially disaster management divisions/teams work to strengthen local community resilience (4-5 case studies tentatively) Speakers Local governments (Songa District/Korea, Makati/Philippines, Representative from China, Representative from Japan, and Representative from Thailand.
11:00 - 11:20	Coffee Break
11:20 - 13:00	Workshop 2 *Simulations in Disaster Risk Reduction* 恒润博雅 HIRAIN-BEST http://hirain-best.com.cn/En *Training of Emergency Knowledge and Skills* Workshop Chair: Ms Elaine Yang *The Hirain Best Company*
13:00-14:00	Lunch Break

USTCN/TIEMS 2018 Manila Conference

14:00-15:40	Workshop 3 *TIEMS TQC International Certification: Operations and Good Practice* ***TQC = TIEMS Qualification in International Emergency Management Certification*** Workshop Chair: Sandro Bologna Topics ***Why become an International Certified Emergency Manager?*** It is a requirement from many countries, as reported in a survey from TIEMS and in a Report from World Bank ***What are the steps of getting certified?*** Up today there is no general accepted Certification Scheme. In some countries, you need to pass a certification exam before you can be considered for an EM position. In others it's sufficient to have an appropriate CV. Countries have different EM requirements. ***What it means appropriate CV?*** To have an appropriate work history, experience, education training, references. It is different from different certification schemes and from country to country. *How TIEMS TQC Certification will work?* The intention is to set up an Accreditation Certification Body in charge both for the preliminary CV verification and certification exam. The big news is in the undertaking of the Accreditation process, against specific standards and released by an authorization Body.
15:40-16:00	COFFEE BREAK
16:00 - 18:00	Workshop 4 *Industry Presentations* Sponsors & Exhibiting Companies Workshop Chair: Guosheng Qu TIEMS Vice President ▪ Xianheng International Science &Technology Co., Ltd. ▪ Longyan Haidexin Automobile Co., Ltd ▪ Fujian Qiaolong Emergency Equipment Co., Ltd ▪ China Harzone Industry Corp., Ltd.
18:00 - 20:00	Conference Reception
20:00	Finish Day 2

USTCN/TIEMS 2018 Manila Conference

PROGRAM DAY 3 - THURSDAY NOVEMBER 15, 2018 PRESENTATIONS REGISTRATION FROM 0700	
08:00 - 08:15	*Welcome to University of Santo Tomas* UST Rector Herminio Dagohoy, O.P., Ph.D.
08:15 - 08:30	*TIEMS International Activities to improve Global Resilience* K. Harald Drager *TIEMS President* An update of TIEMS development and Activities Worldwide
08:30 - 09:00	*State of Civil Protection in the world: Typologies, Good practices and Economic Returns* Lesley Jeanne Y. Cordero *Senior Disaster Risk Management Specialist* *World Bank*
09:00 - 09:15	*USAR/CERTs Capacity Buildings and National Accreditation Process (NAP) of USAR Lessons Learned From China* QU Guosheng *TIEMS Vice President* *Prof. National Earthquake Response Support Service (NERSS), CEA* *Expert Group Leader of USAR of CEA* *Deputy General Team Leader of China International Search and Rescue Team (CISAR)* *Director, Research Centre of Digital Disaster Mitigation and Emergency Management, IDC, Peking University.*
09:15 - 09:45	*How to Predict the Next Big Earthquake in Manila? Is it possible? The AMaDeUs Approach* Dimitar Ouzounov *Chapman University, USA*
09:45 - 10:00	COFFEE BREAK

USTCN/TIEMS 2018 Manila Conference

10:00 - 12:00	**Tyler Gates** *USA*	*Virtual Reality in Emergency Management*
	Roman Tandlich, Hallo Angala, Eunice Paidamoyo Vhiriri, Nosiphiwe P Ngqwala & Bongumusa M Zuma *South Africa*	*Scoping and understanding of vulnerability in the context of WASH, ethics and disaster Management*
	Bhaskararao Mulam *India*	*Regional Collaborative Strategies for Preventing Disaster Risks in South Asia: Need for a better Cooperation and Coordination among the SAARC Member Countries*
	Thomas Robertson *USA*	*Applications of Advanced Information Technologies to Disaster Risk Reduction*
	Neil Dufty *Australia*	*A New Approach to Disaster Education*
12:00 - 13:00	TIEMS ANNUAL GENERAL MEETING	
13:00 - 14:00	LUNCH BREAK	
14:00 - 16:00	**Bhaskararao Mulam** *India*	*Regional Collaborative Strategies for Preventing Disaster Risks in South Asia*
	Joseph Pollack *USA/France*	*Towards a transversal approach to understand Emergency Operations Centres*
	Snjezana Knezic *Croatia*	*Operational procedures for the long term cultural heritage adaptation strategies against climate change induced disasters*
	Jie Zhao *China/Belgium*	*The Risks and Crisis Caused by the Political Power of New Technology*
	Sandro Bologna *Italy*	*From Protection to Resilience*
	Yukio Fujinawa *Japan*	*Intensive seismic network for the earthquake early warning using mobile phone base station*
16:00 - 16:20	COFFEE BREAK	

USTCN/TIEMS 2018 Manila Conference

16:20 - 18:00	**Mao Yuwen, Zhang Shifu, Chen Jisai & Zhou Yongxian** *China*	*Research on emergency disposal technology and equipment development of garbage and animal corpse in disaster area*
	Zhang Shifu, Deng Xianyi, Mao Yuwen, Zhang Dongmei & Li Cunjing *China*	*Development and application for mobile emergency drainage system in urban flood rescue*
	Jaroslav Pejcoch *Czech Republic*	*Smart City - Secure Haven or Threat?*
	Young Jai Lee, Yejin Kim & Seong Kyung Kang *South Korea*	*Lessons Learned from Korean Local Government Disaster Risk Reduction (DRR) Manuals and Capacity Building Activities*
	Xuanye Li & Ling Huang *China*	*Analysis of the Application of the Haidexin Emergency Industry Platform in the Philippines*
18:00 - 22:00	TIEMS GALA DINNER	
22:00	FINISH DAY 3	

USTCN/TIEMS 2018 Manila Conference

PROGRAM DAY 4 - FRIDAY NOVEMBER 16, 2018 PRESENTATIONS Registrations from 0700		
08:00 - 10:00	**Gbenga Morenikeji, Daka Tersee William & Nurudeen Mohammed** *Nigeria*	*ASSESSMENT OF THE RISK AND EFFECT OF FLOOD IN SOME SELECTED COMMUNITIES IN MAKURDI LOCAL GOVERNMENT AREA OF BENUE STATE, NIGERIA*
	Soon-Joo Wang *South Korea*	*Use of Hazard Vulnerability Analysis(HVA) as a Life Saving Tool for Disaster Preparedness*
	Kailash Gupta & Suresh Kumar Ola *India*	*World's 100 Resilient Cities, India's 100 Smart Cities, and Jaipur Resilient & Smart City*
	Tererai Nhokodi, Sbuda Dwani & Roman Tandlich *South Africa*	*Case study on disaster risk reduction and public health implications management in South Africa*
	Jaiye Dukiya & Banji Adeleye *Nigeria*	*POVERTY AND DOMESTIC FUEL CHALLENGES; A THREAT TO GLOBAL DRR CRUSSADE IN NIGERIA*
10:00 – 10:20	**COFFEE BREAK**	
10:20 - 10:50	*The Philippines' Current Strategies in Earthquake Disaster Risk Reduction* **Renato U. Solidum, Jr.** *Undersecretary for Disaster Risk Reduction and Climate Change, Department of Science and Technology and Officer-In-Charge, Philippine Institute of Volcanology and Seismology* *Department of Science and Technology and Philippine Institute of Volcanology and Seismology (DOST-PHIVOLCS)*	

USTCN/TIEMS 2018 Manila Conference

10:50 - 11:20	*I HEARD IT ON THE INTERNET! Common Emergency Management & Business Continuity Challenges* Alex Fullick *TIEMS Newsletter Editor* *MBCI, CBCP, CBRA, v3ITIL* has been assisting major Canadian organizations initiate and manage customized Business Continuity Management (BCM) programs for over 19 years. He is the Founder and Managing Director of StoneRoad, a consultancy and training firm specializing in BCM.
11:20 - 11:50	*Civil Protection During Disasters* SUSANA G. JUANGCO, RN, MPH *Capacity Building and Training Service, Office of Civil Defense - NDRRMC*
11:50-12:20	*People, Supply and Information (PSI) Resilience Index for SMEs in the Philippines* Ramil "Mel" Cabodil President Business Continuity Managers Association of the Philippines (BCMAP)
12:20 - 13:00	CONFERENCE SUMMARY & CONCLUSIONS
13:00 - 17:00	TOUR The conference will conclude and finalize before lunch on 16th of November, and after lunch there will be a tour to the Office of Civil Defense- National Disaster Risk Reduction Management Council (OCD-NDRRMC) Emergency Operations Center & Earthquake Center. There will be served a box lunch on the bus
17:00	End of Conference

Workshop Details

Workshop 1
Disaster Risk Reduction (DRR) Communication Platform
TIEMS Korea Chapter
Workshop Chair: Yejin Kim

Topic

Local community resilience, public private partnership

Objectives

To introduce how local government stakeholders, especially disaster management divisions/teams work to strengthen local community resilience (4-5 case studies tentatively).

Speakers

Local governments (Songa District/Korea, Makati/Philippines, Representative from China, Representative from Japan, and Representative from Thailand.

Global DRR Technology

Background

The Government of Korea declared the Incheon Regional Roadmap (REMAP) to mainstream disaster risk reduction (DRR) and climate change adaptation(CCA) at the 4th Asian Ministerial Conferences on Disaster Risk Reduction (AMCDRR) in 2010. The REMAP seeks to foster DRR capacity building and promote sharing of information, technology, sound practices, which can result in development of climate and disaster resilient policies and community planning. To meet such needs, a DRR Technology Platform has been developed after rounds of consultations and financial support from by the Ministry of Interior and Safety (MOIS), Korea.

Aligned with the Sendai Framework for Disaster Risk Reduction 2015-2030 and the Sustainable Development Goals (SDGs), the DRR Technology Platform aims to achieve inclusive and participatory information sharing and networking among all cross sectoral stakeholders (national & local governments, regional & international organizations, academia, NGOs and private sector) to build community resilience by leveraging Information and Communications Technology(ICT).

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Korean Society of Disaster & Security

For further information, please visit our website at
www.pr4gdm.org

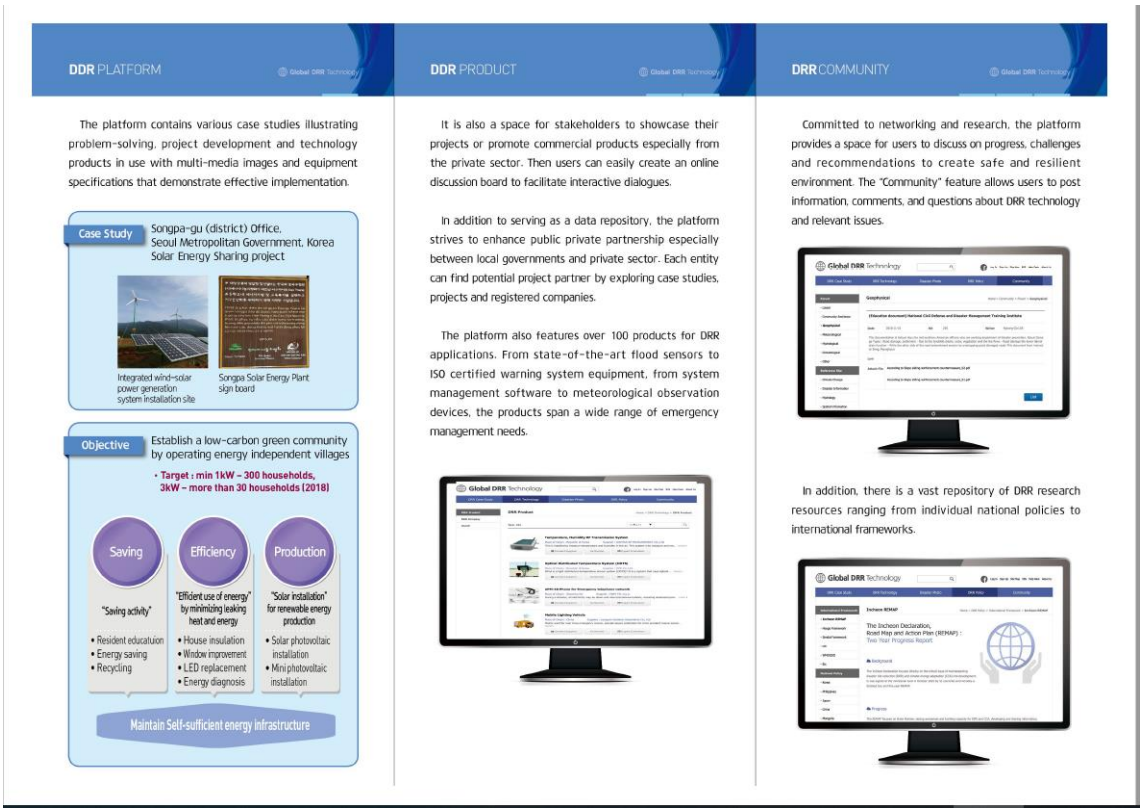
or contact us:
Email : koreaocm@gmail.com
Telephone : +82-10-2555-3444

www.pr4gdm.org ▸ Global DRR Technology

Introduction

Global DRR Technology is an online Community of Practice on disaster and climate resilience. It is open to all users where each one can freely upload and download relevant information.

The site provides practical a information including :
- DRR Case Studies
- DRR Technology Products
- DRR Technology Provider
- DRR Community
- DRR Policy and Photo etc.



Workshop 2

Simulations in Disaster Risk Reduction
The Hirain Best Company

http://hirain-best.com.cn/En

"Training of Emergency Knowledge and Skills"

Workshop Chair: Ms Elaine Yang

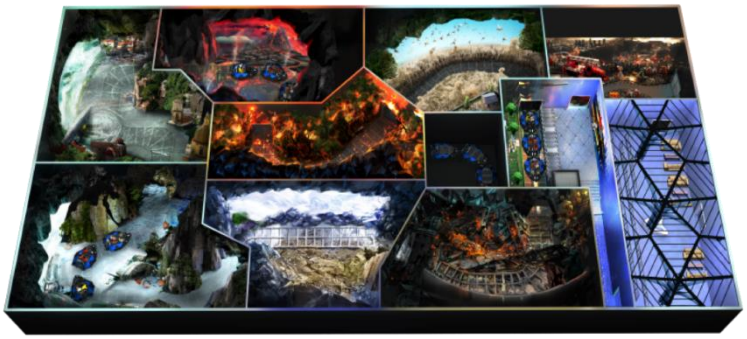
Hirain Best has established a strategic cooperative relationship with the International Emergency Management Society(TIEMS) , Digital Disaster Reduction and Emergency Management Research Center, IDC, PKU and International Emergency Industrial Technology Innovation Strategic Alliance(IEITISA). Under the guidance of experts both at home and abroad, Hirain Best is committed to enhance the safety awareness and the ability to prevent and cope with emergencies among the public, and actively promote the rapid development of the emergency industry and disaster reduction cultural undertakings, which provides knowledge reserves, material security, technical support and professional services for the safety and stability of the community.

The core business of the company involves culture transmission of disaster prevention and mitigation, emergency safety experience, disaster coping education and training, which includes hosting international emergency exhibition and symposium, creating emergency products and technology trading platforms, developing emergency VR & amp; AR education products, implementing emergency safety experience projects and carrying out disaster coping education and training.

Hirain Best focuses on cultural tourism scenic spots, amusement theme parks, creative consulting of theme parks, management planning and project operation services. The company brings together the talents of emergency, disaster prevention, security, education, entertainment, art, exhibition and tourism, relying on the core concepts of disaster prevention, disaster reduction and emergency safety, and using new technologies such as 3D, 4D, VR, AR and NFC and entertainment means, which has successfully completed a number of emergency projects both at home and abroad and is the leading and only "one-stop" service enterprise with the combination of consulting planning, creative design, construction projects, scenarios, landscaping sculpture, art production, multimedia technology integration, IP video customization and operation management, etc.

Application of patent products

1、7-min-ride into disaster



This international first-class project was originated by Hirain Best. Combining major disasters with the dark-ride technology, we allow the visitors experience the devastating force of those disasters. The visitor will go through seven disaster scenes include earthquake, floods, tsunami, plague of insects, etc. With so many kinds of disasters happened one after another in the same place, this is a breakthrough that never seen before. After a 7 minutes ride through disasters, the visitor will have a profound and intuitive understanding towards disaster.

2、The 360 panoramic shuttles of the volcano

Combined with the volcanic disaster and the 360° panoramic shuttle, this is an advanced project with experience. At the beginning, the visitors will enter the experience area and sitting at the seats that linked to each other and formed a loop of 360°. Then, the seats will be lifted up to the screen area, which is circular-screen of 360°. Follow the plot of the film, the seats will make the motions like clockwise and counterclockwise rotating, bouncing up and down; each seat will have effects like vibration, air blast, water. With the content of the film, all the effects will cause some visual illusion to the tourists; make them having the feelings of falling into the abyss or pumping into the sky. The ups and downs of the somatic effect combined with the film will give visitors an unparalleled experience of stimulation.

3、Disaster Leap Cinema

This is a kind of experience equipment that combines the huge dome screen and the seats of motion to enjoy the extreme flight experience. When the visitors take their seats, the seat baffles will put down, and the seats will be launched, and suspended in front of the screen, and the visitors' feet will leave the ground like a flying bird.With the customized movie of disaster theme, the seats will moves from the left to the right and from the front to the back, so that the visitors have the feeling of an eagle flying in the clouds, and sometimes dives to the fire or fly over to the top of the mountain. It is an unprecedented way to experience disaster.

4、360 degree immersive ball screen Theater

The 360 degree immersion ball theater is a 14 meter ball with 12 meters in diameter and an impressive 360 degree ball projection. The middle of the ball is a tempered glass corridor with a width of 2 meters wide and 12 meters long. It can hold 50 visitors at one time. Visitors can enter the ball screen from one side of the staircase, and the screen is filled with 18 high-definition laser projections. The movie lasts about 6 minutes, which enables tourists to tourists truly experience the disaster scene, in order to

deepen their understanding and experience of disaster scenes, and enhance their awareness of disaster prevention and reductions.

5、VR Earthquake House

We apply the virtual reality technology to the earthquake experience house to create the first VR earthquake experience house in China. The VR earthquake house realistically reproduces the "terrible scenes" of a real earthquake through VR technology, which is supplemented by earthquake simulation platform movements and simulates all kinds and all levels of earthquakes, allowing the people to experience the thrilling earthquake in the VR-created virtual space.

6、5D Multidimensional Time-travel

Dynamic 5D Ride break through the mode of traditional cinemas. It takes the car with visitors as a carrier; send them into two arc giant screens to encircling the vision of the car. With 3D movies of disaster theme and shaking platforms, the visitors will have an extremely shocking experience.

7、VR Virtual Driving

The "VR Virtual Driving" project consists of a complete experience system, including VR glasses, steering wheel, shift lever and seats. The entire system can not only simulate extreme weather conditions such as

rain and snow, but also simulate a variety of man-made traffic accidents. For example, in the simulation of the drunken driving accidents, there is a hydraulic rod behind the seat to simulate the shaking effect while drunk driving. Besides, there is an indicator in front of the seat, which can fully display the effects of people who experience in the VR video. VR, through real simulation, makes people personally on the scene, so as to more deeply understand the danger of traffic accidents.

8、VR Virtual Display Electronic Mall

The arrival of VR and AR must be a great revolution for e-commerce and offline shopping. The same is true for emergency equipment selection and purchase. For example, to purchase a fire extinguisher or first aid kit, you do not need to extinguish the fire or rescue on site. Just wear our VR / AR equipment we developed, then you can experience and understand the use of the product in real time. From the pre-purchase category selection, to the purchase of the trial experience, and finally to the purchase of "recommended similar products ", VR / AR technology have used throughout all aspects of the shopping scene.

Workshop 3

TIEMS TQC International Certification: Operations and Good Practice TIEMS

TQC = TIEMS Qualification in International Emergency Management Certification

Workshop Chair: Sandro Bologna

TIEMS TQC Certification

With an increasing number of disasters worldwide, resulting in more international collaboration and support to disaster stricken areas, the need for more education and training in emergency and disaster management seems evident. TIEMS believes that it is important to raise the awareness of the competencies needed in emergency and disaster management, and to support those participating in these activities and operations in acquiring those competencies in an international setting

An international certification has been launched by TIEMS, called Certification of Qualifications in International Emergency and Disaster Management (QIEDM), or TIEMS QIEDM Certification or just TQC

The full name of the TQC certification is:

TIEMS TQC International Certification - Operations and Good Practise

3

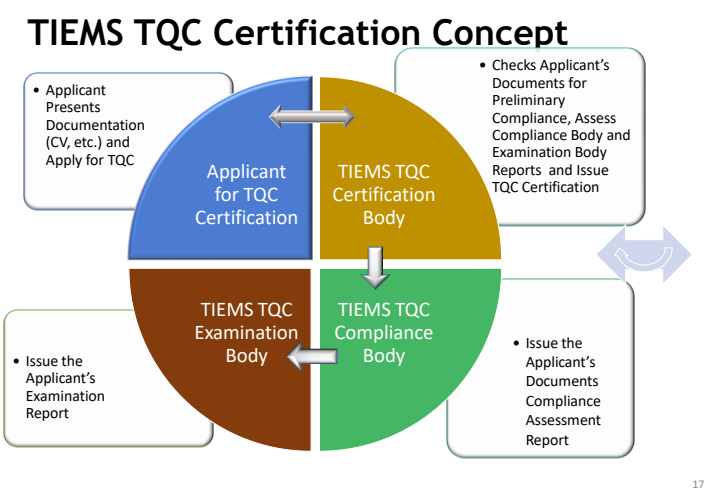
The Workshop will answer to some of the basic questions, as follow:

1. ***Why become an International Certified Emergency Manager?***
   It is a requirement from many countries, as reported in a survey from TIEMS and in a Report from World Bank

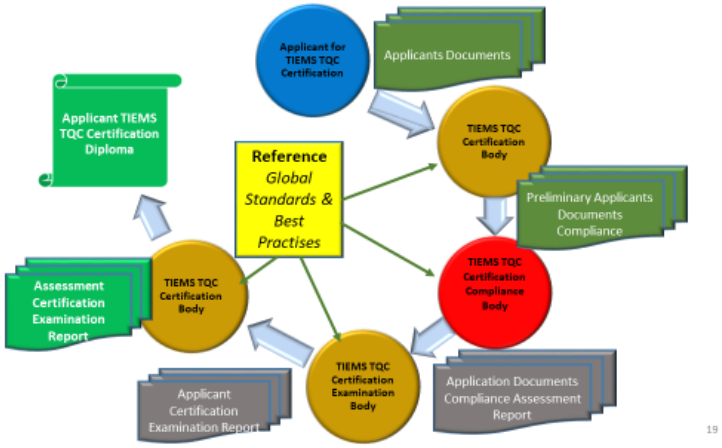
2. ***What are the steps of getting certified?***
   Up today there is no general accepted Certification Scheme. In some countries, you need to pass a certification exam before you can be considered for an EM position. In others it's sufficient to have an appropriate CV. Countries have different EM requirements.

3. ***What it means appropriate CV?***
   To have an appropriate work history, experience, education training, references. It is different from different certification schemes and from country to country.

4. ***How TIEMS TQC will work?***
   It is intended to set up a Accredited Certification Body in charge both for the preliminary CV verification and the certification exam. The big news is in the undertaking of the Accreditation process, against specific standards and released by an authorized Accreditation Body.



TIEMS TQC Certification Document Flow



TIEMS TQC Certification Reference Standard & Best Practices

Any international recognized standard and best practice within Emergency and Risk Management, related to all phases of the Emergency Management and Risk Management Cycles, against which the TIEMS Certification Body do their Evaluation of the Applicant

TIEMS has started a Survey of the existing National and International Standards, Best Practices, Guidelines, etc. about Emergency and Risk Management in the different Countries, where they exist

Workshop 4

Industry Presentations

Sponsors & Exhibiting Companies

Workshop Chair: Guosheng Qu

- **Xianheng International Science &Technology Co., Ltd.**
- **Longyan Haidexin Automobile Co., Ltd**
- **Fujian Qiaolong Emergency Equipment Co., Ltd**
- **China Harzone Industry Corp., Ltd.**

Keynote Speakers

STATE OF CIVIL PROTECTION IN THE WORLD: TYPOLOGIES, GOOD PRACTICES AND ECONOMIC RETURNS

Josef Leitmann and Mare LO

Abstract

In the framework of TIEMS 25th Anniversary and 2018 Annual Conference, the Global Facility for Disaster Recovery and Resilience and its partners to the global study on the state of civil protection are pleased to share the initial findings emerging from the Literature review and select country case studies.

Launched in late 2017, the study is a World Bank initiative whose objective is to build a common knowledge base of the different civil protection systems and practices around the world. The analysis is illustrated by in-depth review of best practices, challenges and lessons-learnt that could help to build consensus on the role of civil protection and its potential benefits in the overall framework of disaster risk management and resilience. This initiative fills a gap. It provides a robust comparative basis for lessons learned.

A civil protection system in a country is the coordinated framework of laws, plans, organizations, people and resources working together to protect civilians, assets and economic activities against the negative impact of natural or man-made disasters and accidents.

A civil protection organization is any state, volunteer or non-governmental entity assuming one or many responsibilities in the functions of a civil protection system at national, regional, local or international level. The main identified functions are typically Disaster Management and Resilience, Law enforcement, Emergency Response Services, Emergency Medical Services, Community Support Services, Cooperation and International Emergency Response Assistance.

As shown in many studies and reports, the concept of civil protection is diversely understood and implemented across countries, cultures and state of development. While it primarily embodies the responsibility and the ability of the modern state to protect its citizen, their activities and assets against adverse natural or man-made events, the reality of civil protection is quite complex. There is a broad range of cultural and economic enablers, and challenges. Geography and historical trends are key determinants of the state of the civil protection in a country.

A comprehensive literature review on civil protection has been completed. It summarizes the existing knowledge and highlights salient issues and opportunities, while providing indications for further research through country specific case studies. Case studies in United Kingdom, United States, France, Mexico, and Chile are available. Tanzania, Turkey, Japan, Bangladesh, Senegal, Austria, Cambodia, and Australia are in process.

The typology of civil protection in the world presented by the desk-review report is non-exhaustive and based on an integrated approach to risk and resilience. The typology uses only a few qualitative drivers and indicators that are comparable and scalable, thus setting a framework for further data collection and analysis.

The typology is an attempt to arrange civil protection systems in the world into a few categories, using a qualitative approach that is not an opinion on performance. The categories were established using a set

of criteria that are comparable and scalable across different geographical regions and cultural contexts. A matrix of the basic civil protection roles and functions is used to capture the reported or discussed capacity of the civil protection system in each country, in terms of the presence, and coverage of emergency management services at national, regional and local level. Existing international classifications of technical capacity were also used in the capacity mapping process, such as the IEC of INSARAG, complemented with data on disasters from the EMDAT global database. All countries in the world were reviewed and grouped into five categories reflecting the state of their civil protection system.

The report is structured around four key chapters, presenting the questions, the approach, the challenges and how they are addressed. It also provides a short historical background of civil protection in the world followed by a discussion on the definitions, and a presentation of the key roles and functions which can be assessed in any country, using a simple checklist. For this, a matrix of the core roles and functions of civil protection was established. This allows for a comparative analysis of countries using a common set of variables and indicators. In country cases, a rapid survey of stakeholders can support a reliable set of qualitative indicators of the state of the civil protection institutionally and technically, at national, regional and local level. A global typology of civil protection is thus presented and countries are mapped into five groups. The desk study also provides a description of the key characteristics of each group as well as its strengths, weakness, opportunities and threats (SWOT). The report then offers a brief presentation and mapping of the civil protection system in sixteen countries including their legislative and legal frameworks, coordination and operational arrangements for emergency preparedness, response, recovery, mitigation and resilience, and their ability to contribute to international emergency relief or to interface with foreign disaster assistance teams. Finally, the literature review offers a set of strategic recommendations for further studies and possible short-term interventions to support the development of civil protection systems globally.

Findings I: Global Typology of Civil Protection Systems

Through the review of reports and studies, civil protection systems in the world can be broadly mapped into three categories: ***Structured***, ***Semi-Structured and Unstructured***. Furthermore, a manageable typology of civil protection can be articulated on mapping ***Formal and Informal Civil Protection Systems***. Formal civil security systems are structured or semi-structured. Informal civil security systems are unstructured. The study established a global typology of Civil Protection Systems using five qualitative groups: ***Mature***, ***Developed***, ***Developing***, ***Semi-Structured and Unstructured***. The descriptors are based on institutional settings, coordination, arrangement, technical capacity, the spatial coverage of emergency services and the ability to respond and recover from natural or man-made disasters at all levels. The formal or informal status of a civil protection system is not a statement of effectiveness. In some situations, a formal system could prove dysfunctional or unable to cope, while an informal system may react well and recover faster under similar stress.

	Development Stage	Capacity-Coverage	Coordination	Recovery
CAT1	MATURE	VERY STRONG	STRUCTURED	RESILIENT
CAT2	DEVELOPED	STRONG		
CAT3	DEVELOPING	MEDIUM	SEMI-STRUCTURED	VULNERABLE
CAT5	SEMI-STRUCTURED	LOW		
CAT6	UNSTRUCTURED	VERY LOW	UNSTRUCTURED	FRAGILE

Table 1: The Global Categories of Civil Protection Systems

CATEGORY 1. Mature civil protection systems (coverage above 70%)

A strong or Mature civil protection system is ancient and tested (high score in over 70% of all components of the civil protection matrix). It is well established institutionally and highly regulated, guided with a developed set of legislations, laws, measures, norms and agreements, with a high capacity to enforce it. This type of system is not reactive, but anticipative, it adapts to threats and has established resilience as a driving goal. Generally, countries in this typology are able to cope with all types of emergencies, small or large-scale.

CATEGORY 2. Developed civil protection system (40-70%)

A Developed civil protection system presents the institutional and technical characteristics of a mature system, however with limited capacity and geographical coverage (Medium to high score in 40-70% of all components of the civil protection system). Such systems are found in countries culturally oriented towards an elaborated protection of their citizens against disasters. Nevertheless, the expansion of the civil protection system is hampered by challenges experienced in their history and economic constraints. They are generally able to cope with most types of small emergencies. However, when facing large-scale events, they may require foreign technical and financial assistance.

CATEGORY 3. Developing civil protection system (20-40%)

A Developing civil protection system is established on a regulated framework, but it lacks the capacity to enforce it. Such systems present chronic gaps in terms of technical capacity and coverage (Medium to high score below 40% of all components of the civil protection system). In such systems, the coverage for small incidents is low and relies on social safety nets, particularly in rural areas. It is also the largest group.

CATEGORY 4. Semi-structured civil protection system (10-20% coverage)

A Semi-structured civil protection system has some institutional and technical components in place. However, the ability of actors to work together is low; the already low capacity is impeded by ad-hoc and overlapping interventions. The roles and responsibilities are not clearly delineated. The limited transparency and collaboration, results in duplication of efforts or ineffective prioritization. In such systems, the capacity gaps are higher than observed in underdeveloped systems. Large geographical areas are far away from professional emergency services. Also, in such systems, humanitarian situations can develop, justifying the deployment of humanitarian actors who are gradually involved in responding to small incidents with resources initially allocated to large-scale slow-unset emergencies. Although government funding can be made available in case of major disasters, such system overly relies on international aid for most components.

CATEGORY 5. Unstructured civil protection system (coverage below 10%)

An Unstructured civil protection system is dominated by independent actors, with limited coordination. It is reactive and ad-hoc based. It evolves out of necessity and good faith, usually on humanitarian basis. It is mostly found in fragile States.

Findings II: Review of Selected Countries

The review presents the civil protection system of sixteen countries selected by the World Bank GFDRR. The report attempts to summarize their status, while examining key strengths and potential gaps, against the challenges of natural or man-made disasters. Although they play a major role during

emergencies, the law enforcement roles were not examined, as the report focuses on preparedness, response, recovery, mitigation and resilience.

The review reveals that each country's situation is defined by its geography and history, the demographic pressure, the governance model and the economy. It shows that there is no perfect model of civil security. However, the high level of organization and technical expertise in the key roles and functions of the civil protection are key in defining a strong system. Such system is also one which ensures an extensive coverage of communities with emergency management services. A huge level of readiness is found at national, regional and local levels. However, they are not perfect. Their main weaknesses are a low tolerance to risk, the complexity of procedural requirements, the complexity of accessing funding at local level, the inequalities among communities and the lack of operational flexibility, due to the burden of procedures. They are also challenged by the rising of new threats, such as terrorism. This is the case of the United States, France, Ukraine, Australia, New Zealand, Japan, United Kingdom, Chile, Turkey, China and India.

New Zealand, Japan and Chile present the best practices in emergency preparedness in the context of a high exposure to natural hazards such as earthquakes, volcanoes, tsunamis and extreme weather. To note, is the rigor and inclusiveness of planning in all phases of the emergency management cycle. Also, these countries adjust their regulations following the close scientific monitoring and assessment of hazards and risks. Their national culture of leaving with risks is a model. New Zealand, Japan and Chile have developed innovative approaches to risk education adapted to the permanence of serious threats in their communities.

Morocco and Mexico are example of countries where the combination of State and community engagement is a strong foundation for further development; especially, their municipal capacity. Senegal offers an example of a developing civil protection system, with a solid institutional and cultural basis but with technical and financial gaps. However, the country is ready for an increase of emergency services in urban and rural centers. India and Bangladesh offer a rich experience of integrating civil protection with the overall disaster risk management and development planning. This includes the growing implementation of Community Based Disaster Management and the involvement of volunteers in rural areas. Cambodia is the less developed country reviewed. However, this ASEAN member has made notable progress in improving its institutional framework. Despite its poverty, Cambodia has demonstrated a great resilience to natural disasters, particularly floods and cyclones. The resilience of Cambodia poor rural communities confirms that poverty and the apparent weak organization of a formal civil protection system don't necessary lead to failure. It is a good study case for cultural factors of resilience, considering that the effects of a protracted conflict are still visible in the country.

Finally, the transfer of capacity is a possible way of lessening the gap between the mature and the semi-structured civil protection system. Countries of the first group have a substantive amount of expertise and experience to share. They can also learn from the most vulnerable ones.

Recommendations

These recommendations summarize the key issues found and indicate areas that may benefit from further research and discussion, to understand the development of civil protection systems in the world. From an applied research perspective and considering the action-oriented approach of the World Bank GFDRR, these recommendations indicate potential areas of interventions that could bring a substantive improvement. Most studies concur that civil protection is a critical public service; moreover, in the context of the increased vulnerability induced by poverty and inequalities, climate change, the depletion

of natural resources and conflicts. Strategic recommendations inform policies and the orientation of programs, while tactical recommendations are short-term action points for targeted interventions.

1. **Strategic recommendation 1:** ***Maintain a knowledge base to understand the specific factors that are favorable or unfavorable to the development of civil protection systems in each country and geographical region.***

2. **Strategic recommendation 2:** ***Keep an updated Global Typology of Civil Protection as a practical generalization of civil protection systems into groups with similar attributes. It is a key component of a dynamic knowledge base on civil protection.***

3. **Strategic recommendation 3:** ***Mobilize global efforts to improve civil protection systems, to provide emergency management services to people in a timely, safe and professional way. There is no fail-proof civil-protection system.***

4. **Strategic recommendation 4:** ***Support the work toward establishing a bridge between short-term humanitarian assistance frameworks and the long-term disaster management and civil protection capacity requirements, in the countries with semi-structured or unstructured civil protection systems.***

   Strategic recommendation 5: ***Support an all-stakeholder approach to civil protection, a greater reliance on volunteers in technical functions, particularly in rural and urban communities.***

5. **Tactical recommendation 1:** ***Country in-depth studies should provide a robust and comparable evidence to the knowledge base.***

6. ***Tactical recommendation 2: Support capacity building initiatives aiming at addressing the civil protection gaps, particularly in countries with developing, semi-structured and unstructured civil protection systems.***

7. **Tactical recommendation 3:** ***Actively support financial and technological innovation for emergency preparedness, response, recovery and mitigation.***

Conclusion

This study is one of the most important projects in the field of civil protection in the world. It will serve as a knowledge of worldwide civil protection systems and practices. For example, it could be part of the TIEMS TQC Certification Curriculum.

The literature review and the country-specific case studies will be followed by a citizen survey to measure the level of involvement, participation and satisfaction of communities on civil protection services delivery. The study will be complemented in the upcoming months by an economic analysis of return on investments in civil protection and preparedness. Finally, the study will allow for the identification of institutional gaps, the most beneficial areas of investments, and recommendations of policies and investments to strengthen the civil protection systems, especially in developing countries.

For more information on the study, visit GFDRR website (www.gfdrr.org) to upload the literature review and case studies.

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He also developed and managed the $650 million Multi Donor Fund to help rebuild after the tsunami in Indonesia. Joe has over 30 years of development experience with the World Bank in disaster risk management, climate change, natural resource management, urban development, forestry, and clean energy. He has worked in over 40 countries and held long-term assignments in Turkey, Brazil, Indonesia, Haiti, and the South Pacific (the latter as a U.S. Peace Corps volunteer).
Dr. Leitmann holds a PhD in city and regional planning from UC Berkeley and a Master's from the Harvard Kennedy School. He is the author of a textbook on urban environmental management (***SUSTAINING CITIES***), co-author of ***INVESTING IN URBAN RESILIENCE*** and numerous articles.

Mare Lo

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He provides specialized cross-support to Global Practices and national country offices at the World Bank Group.

With over 20 years of national, regional and international experience, at managerial or advisory positions in various sectors, he is working at the forefront of developing proactive strategies, policies and innovative solutions related to resilience to disasters and climate change adaptation. He has demonstrated experience in the formulation and implementation of public policies and programs, institutional and legal framework related to disaster management and its linkages with the development processes.

Before joining the World Bank Group in 2017, he held several high-level positions with the Government of Senegal for 17 years, as Permanent Secretary or Director of Cabinet in different Ministries, National Director of Civil Protection, First Advisor, Deputy Governor of Region and Prefect of District. As International Consultant on DRR/DRM, he worked with many international and regional organizations like UNISDR, UNDP, ECOWAS Commission and many other agencies mainly in Africa. He is member of the PDNA Roster of Experts of UNDP/EU/WB and has contributed to trainings on Post Disaster Needs Assessment (PDNA) and Disaster Recovery Framework (DRF) methodologies for more than 15 countries and regional economic commissions around the world.

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Lesley graduated *magna cum laude* with a degree of **Bachelor of Philosophy** at University of San Carlos in 2001 and ***Juris Doctor* of Laws** at the Ateneo de Manila University School of Law in 2005.

USAR/CERTs Capacity Buildings and National Accreditation Process (NAP) of USAR Lessons Learned From China

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ABSTRACT

China International Search and Rescue Team (CISAR) had passed IEC in 2009 and IER in 2014 as heavy USAR team depends on INSARAG. During 2012-2015, CISAR guided for the National USARs capacity building of Nepal just before the Ms 8.1 earthquake occurred. After getting the experience of how to capacity building for USARs, and then CEA/CISAR found the expert group of USAR of CEA in 2015. By the guidance of INSARAG and authorized by the INSARAG-Secretaria, FCSS, UNOCHA, the expert group of USAR of CEA make a pilot project for capacity building for domestic USAR teams of China and certificted for two teams under the supervision of CEA. The first heavy USAR team who had passed Chinese-SARAG External Certification (CEC) in China is the Armed Policed General USAR team of Gansu Province under the leading of CEA in 2016. And the second heavy USAR team who had passed Chinese-SARAG External Certification (CEC) in China is the the Firefighter USAR team of Fujian Province in 2017. Through the studies of the pilot project, the expert group of USAR of CEA had made a capacity building standard preliminary for domestic USAR teams of China, and the core check lists of USARs referenced with INSARAG for passing the Chinese-SARAG External Certification (CEC) for China Provincial or regional search and rescue teams, that called National Accreditation Process (NAP) by UNOCHA INSARAG, and hoping to extend NAP to Asia-Pacific Area. Community Emergency Response Team (CERT) or First Responders is the fourth parts of USARs depend on INSARAG, which origined and developed in Los Angles of USA since 1985. From 2014, CERT concepts drawed into China with the cooperation of FEMA, and through the three years localization and application, the Chinese version CERT fundamental capacity buildings training courses had published. This paper will share the experiences of USAR/CERTs capacity building, and the CEC for the national level USAR teams, and the CERT trainings for CERT members, instructors, and managers, then to support the developing countries to build up their USAR/CERTs systems and capacities, especially along the countries and regions of the Belt and Road Initiatives where with high seismic risks.

I HEARD IT ON THE INTERNET! COMMON EMERGENCY MANAGEMEN & BUSINESS CONTINUITY CHALLENGES

Alex Fullick

TIEMS Newsletter Editor

MBCI, CBCP, CBRA, v3ITIL has been assisting major Canadian organizations initiate and manage customized Business Continuity Management (BCM) programs for over 19 years. H is the Founder and Managing Director of **S***tone***R***oad*, a consultancy and training firm specializing in BCM.

Abstract

Alex Fullick is the host of talk radio show Preparing for the Unexpected on the VoiceAmerica radio network, which focuses on how people, organizations and communities plan, prepare, test, communicate and respond to sudden unplanned events such as natural and manmade disasters and crises.

After a year's worth of episodes discussing topics related to Emergency Management, Business Continuity, Disaster Planning and Crisis Management, as well as other relatable subjects, it's become clear there are common threads and themes that seem to rise to the surface regardless of industry, location or focus for those working to reduce the impacts and suffering caused by traumatic and non-Business as Usual (BAU) events.

These common themes can create issues in all phases of our Preparedness-Response-Recovery-Mitigation phases - or as some would call it - our Plan-Do-Check-Act phases. Regardless of focus, each industry discipline is experiencing the same sets of issues, struggles and challenges, even though they all have the same ultimate goal; to educate and prepare every person, community and organization in the event of disastrous events.

But, what are these challenges facing Emergency Response and Business Continuity professionals and researchers?

The concerns raised by researchers and professionals alike ranged from communications - in all its forms from social media, internal organizational communications to conflicting and confusing terminology to the lack of people and community awareness and understanding. From Lessons Observed being falsely interpreted as Lesson Learned, as there was no action attributed to the observation and finally, to addressing systems over society and common fears.

This session aims to talk about these common challenges and more, with insight and real-life

examples provided by Emergency Management and Business Continuity organizational leaders, authors, industry professionals and practitioners, psychologists and researchers. We'll discuss the areas where we can better improve our working relationships within our various vocations and work with those outside of our profession to ultimately create a sense of resiliency for individuals, communities and organizations.

The Philippines' Current Strategies in Earthquake Disaster Risk Reduction

The Author

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Organization: **Department of Science and Technology *and* Philippine Institute of Volcanology and Seismology (DOST-PHIVOLCS)**

Dr. Renato U. Solidum, Jr. is a geologist having obtained a BS Geology degree from the University of the Philippines. He finished his M.Sc. in Geological Sciences from the University of Illinois at Chicago and his Ph.D. in Earth Sciences from the Scripps Institution of Oceanography, University of California, San Diego. He has worked with the Philippine Institute of Volcanology and Seismology (PHIVOLCS) since 1984 and became its Director in 2003 up to February 2017. He was appointed Undersecretary of the Department of Science and Technology (DOST) for Disaster Risk Reduction and Climate Change (DRR-CC) and assigned as Officer-In-Charge of PHIVOLCS since March 2017.

In recognition of his contributions to disaster risk reduction in the Philippines, Dr. Solidum has been awarded the Presidential Citation for Public Service, the Presidential Lingkod Bayan (Civil Servant) Award by the Civil Service Commission, the Professional of the Year in the field of Geology by the Professional Regulation Commission, the Excellence Award for Government Service by the Philippine Federation of Professional Associations and the Presidential Career Executive Service Award by the Career Executive Service Board.

Dr. Solidum is part of many national and global initiatives related to disaster risk reduction. As DOST Undersecretary, he spearheads the department's DRR-CC undertakings with different stakeholders.

ORGANIZATION PROFILE:
DOST is the country's department which provides central direction, leadership and coordination of scientific and technological efforts and ensure that the results are geared and utilized in area of maximum economic and social benefits for the people as stated in Executive Order 128.

PHIVOLCS is the Philippine government organization mandated to monitor and warn, assess hazards and risk, conduct research and development, and formulate awareness and preparedness plans to events related to volcanoes, earthquakes, tsunami and other related phenomena such as landslides.

HOW TO PREDICT THE NEXT BIG EARTHQUAKE IN MANILA? IS IT POSSIBLE? THE AMADEUS APPROACH

Dimitar Ouzounov[1], Garry de la Pomerai[2], Katsumi Hattori[3]
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Abstract

The recent decade of catastrophic earthquakes (EQ) claimed thousands of lives and caused extensive economic losses. The DRR agencies and NDMAs are struggling with the provision of real time early warning systems, let alone earlier detection of potential major seismic events.

In a recent poll by Swiss Re (2014), an international reinsurance company, Metro Manila is the world's second riskiest 'city' in terms of natural disasters waiting to happen, behind only Tokyo-Yokohama in Japan. Assessment was made on to five natural disasters, EQ, storm, storm surge, tsunami, and river flood. About 34.6 million (2013) people are potentially on the receiving end of the five catastrophes. Therefore the questions "How to predict the next Big EQ in Manila" is more than relevant. The seismically active Marikina Valley Fault System creates a real treat for a large-scale EQ with an estimated M 6–7 and as high as M7.6. (Nelson et al, 2000)
After years of research and development, we are now witnessing the emergence of new realistic inter-disciplinary approaches based on data fusion enabling the reliable forecasting of major seismic events. Whilst still in continuous development, it is now a reality and proven to provide reliable short-term advanced warning. The new approach is a multi-observational data strategy to detect EQ precursors by integrating both satellite observations with ground-based data in order to determine the most relevant signal that provide a pre-EQ warning. The concept is based on innovative methods that were presented in our recent AGU/Wiley Geophysical Monograph Series, describing pre-seismic patterns detection, and on other underlying physical precursors e.g.: radon – gas; NASA numerical assimilation atmospheric models, GPS/TEC ionospheric soundings and thermal satellite observations recorded by NASA/NOAA/ESA/JAXA satellites (Ouzounov et al, 2018). We use these inputs for an initial physical representation of the interactive process between the EQ source with the Earth surface and the ionosphere. An example of a connection between EQs with the ionosphere is the Lithosphere Atmosphere-Ionosphere Coupling model (LAIC) to detect the pre-EQ signals.

Scientific aspects

In recent years, there has been an increasing amount of encouraging evidence that, during the last stages of the long term tectonic preparation process for an impending EQ, there could be a transfer of energy and/or particles between the lithosphere and the overlaying atmosphere, resulting in coupled processes commonly known as LAIC (Pulinets and Ouzounov, 2011). LAIC due to seismicity is one of the most promising physical concepts we use for this research. It is developed on a novel but an integrated process that takes into account multiple natural activities of the EQ preparation process in its latest stage (one-two weeks before the seismic shock). The atmospheric (thermal and ionospheric) anomalies observed by the remote sensing satellites for recent major EQs confirmed LAIC estimates of large spatial scale of occurrence; short live temporal dynamics (several hours up to several days) and altitude dependence in distribution. The estimated release of thermal energy implies that the air ionization process is the primary source driven by the alpha radioactivity of radon.

Technological aspects

Almost all Earth observation satellites (EOS) have been developed to study other phenomena than EQs, such as, to mention some, weather forecast, monitoring of land usage, global warming, and air

and water pollution. However, we found the input of EOS critical in the understanding coupling between different geospheres associated with the time of major EQ preparation, We designed a sensor web called **AMaDeUs** (A Multi-sensor Web system for Pre-EQ signals Detection, Utilization and Alerts) of existing satellite sensors (Terra, Aqua, GOES, POES, MSG and others, Figure 1) and ground observations e.g., Global Positioning System Total Electron Content (GPS/TEC), radon, air temperature, relative humidity, aerosol. Our rationale for using these observations is that there are insufficient spatial and temporal coverage of any one of these observations.

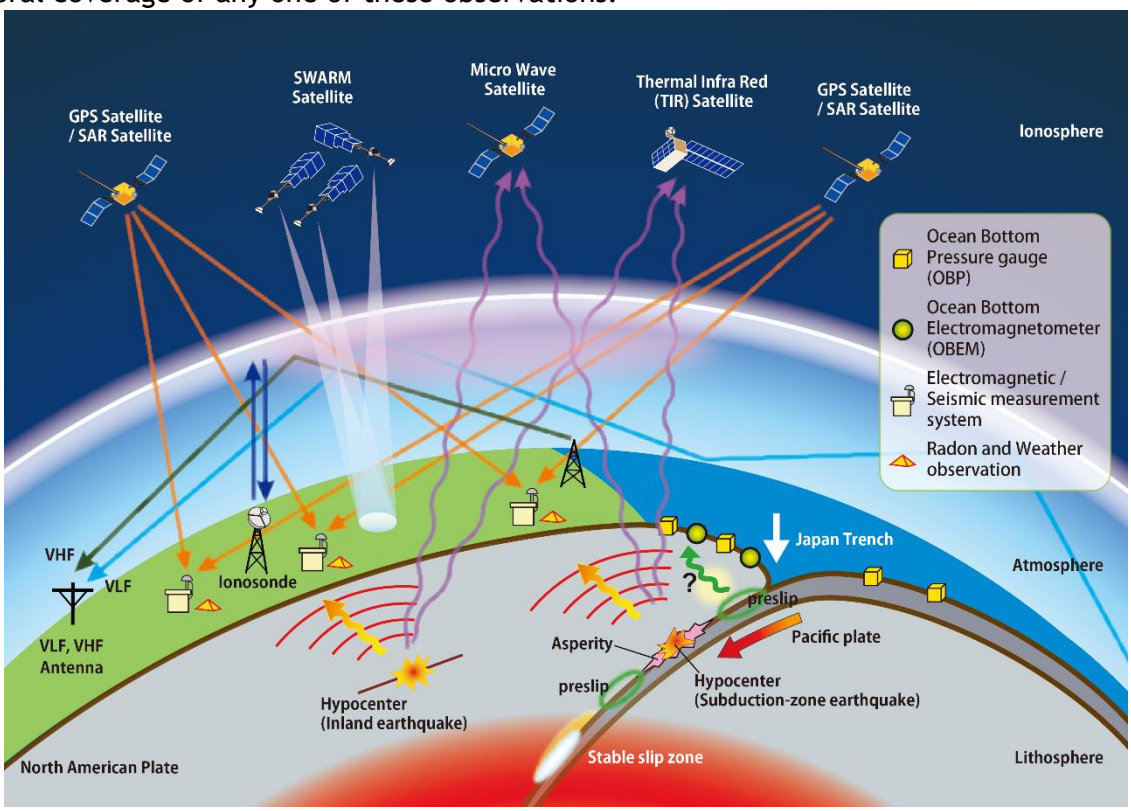

Fig.1 AMaDeUs - conceptual diagram for Geospace and ground observations of pre-EQ signals, case study for Japan

The technological advantage the new approach **AMaDeUs** is to enable multiple and already validated physical measurements to be fused into one framework with the latest theoretical models like LAIC (Lithosphere-Atmosphere-Ionosphere Coupling) and to provide feedback on data gaps, which may then be acquired from other sources. Global observations based on remote sensing technologies, would exploit the unique advantage of space observations of pre-EQ phenomena, namely the possibility of providing the opportunity of using both deterministic and statistical techniques to study databases containing many more seismic events than traditionally studied in EQ sciences. The abundance of data could hopefully balance the challenge represented by an analysis, which necessarily links different disciplines in order to understand diverse physical effects and interactions, starting from lithospheric geophysics, seismology, tectonics and geochemistry, through atmospheric and ionospheric physics, up to the Earth's magnetospheric physics.
The ground-breaking nature of proposed **AMaDeUs** approach is (1) by using novel physical hypotheses for EQ preparation process to build a Sensor web based for multidisciplinary observations, (2) through synergetic analysis to identify seismically related anomalies associated with lithospheric - atmospheric - ionospheric parameters, and (3) to use them as early warning information for major seismic events. To our knowledge such type of science approach for short-term assessment (days/ hours in advance) for reduction of seismic hazard in the major seismic zones has never been demonstrated before.

Practical aspects
The significance of these initial AMaDeUs forecasting alerts will be presented over Japan (2012-2013) where we been alerting for the large EQ events M>5.5 (Fig 2). During the tested period 75 alerts been

issued, 51 EQ (63%) occurred in the alerted regions, and we have 24 (37%) false alarms. We also present real case of forecast for case of M7.3 of December 7, 2012, Japan occurring in the water over Japanese trench. Our analysis was able to alert 14 days in advance for a potential EQ with M> 6 (Fig 2. Right, bottom). AMaDeUs was revealing an unique temporal-spatial evolution pattern in an EQ preparation process, which has also been seen in other major EQ timelines in Central Asia and South America. AMaDeUs tests in different region lead to successful alerts for the M8.3 of Illapel, Sept 16, 2015 Chile EQ and for M7.3 Nepal, May 12, 2015.

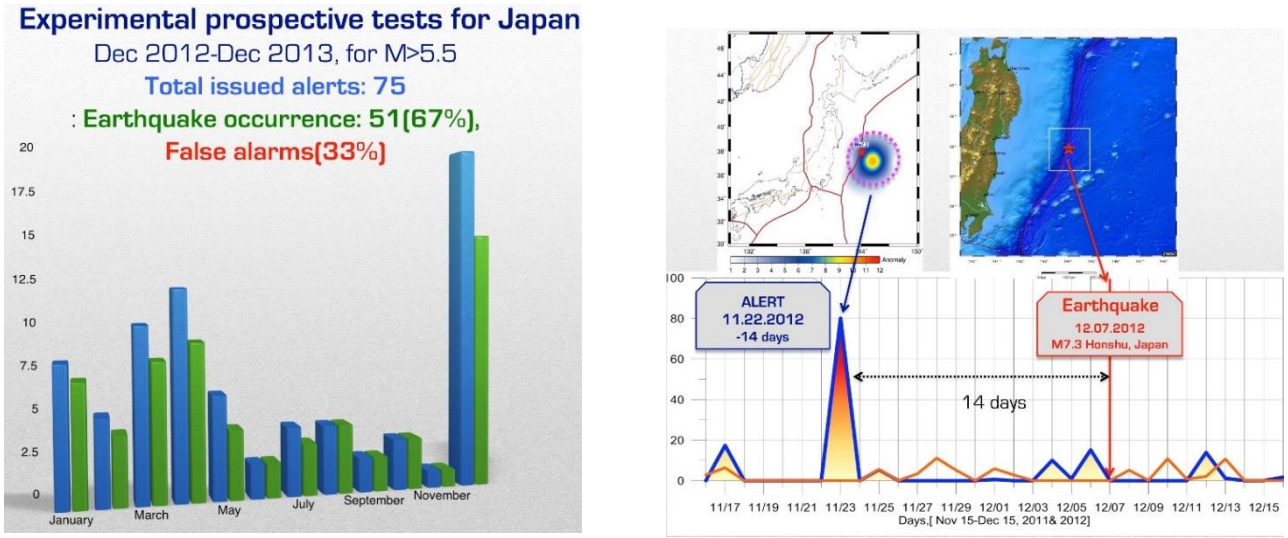

Fig.2 Initial operational testing of AMaDeUs. (Left) One year (2012-13) histogram of monthly EQ alerts (blue, total 75 alerts) and real EQ occurrences related the alerted events (green, 67% success). (Right) represent one EQ case of forecasted evens included into the 2012-13 tests. The M7.3 of December 7, 2012, Japan was alerted 14 days in advance. The detection map is shown and the navigation map (Top). (Bottom) The time series of 30 days show the thermal anomaly in atmosphere (blue line) occurred (11.22.2012) and for comparison the same analysts was preformed for the same period for 2011, and show no anomalies when no seismicity is occurring (orange).

Conclusions

The new observation capabilities in monitoring from ground, earth-space and geo-space, coupled with advances in data analysis and theory, provide opportunities as well as additional challenges. Beyond the science of providing reliable short-term forecasts, the presentation will also highlight the core of these challenges, including: identifying a social science strategy to re-educate the users to receive reliable forecast information; the integrating and reliance upon advanced real time early warning alarm systems; and the preparedness training at all levels of society from Government to Industry to Home, will also be an essential part of any strategy for a full implementation of a comprehensive Early Warning System, which will maximize the potential usefulness and necessity of the developing reliable seismic forecast technology, potentially as a 'New Early Warning'.

See also: https://eos.org/editors-vox/earthquake-precursors-processes-and-predictions

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Dr. Ouzounov is Associate Professor in Geophysics at the Chapman University, Orange, CA, USA and his research topics are: pre-earthquake phenomena, Earth's lithosphere-atmosphere coupling, and short term earthquake forecasting using space technologies. Previously, Dimitar spent a decade as researcher at NASA Godard Space Flight Center, USA, where he developed original concept for studying thermal transient radiation in atmosphere from space in relation to pre-earthquakes processes. Dimitar became a guest- investigator for the French DEMETER (2004-2010) satellite and currently for the new Chinese/Italian CSES (2018) satellite mission dedicated to study the Earth electromagnetic environment associated with earthquakes and volcanoes. His research in Earth's lithosphere-atmosphere-ionosphere coupling unlocked a new phenomena of how geospheres interact in association with mega earthquakes and with other natural disasters. In the geophysics, he is recognized for applying an interdisciplinary sensor-web methodology for time-dependent assessment of earthquake hazards and short-term earthquake warnings. As an invited speaker he attended UN, UNISDR, IDRC-Davos, Kansai Forum (Japan), International school of Physics (Italy) and NASA conferences. He is a member of leading geophysical societies and coordinates various international initiatives on utilizing space-borne observations for earthquake hazard mitigation.

Dr. Ouzounov holds a PhD in Geophysics from Schmidt Institute of Physics of the Earth, Russia and M.Sc in Applied Geophysics of University of Mining in Geology, Bulgaria. He is leading Editor for the new monograph *PRE-Earthquake Processes: A Multidisciplinary Approach to Earthquake Prediction Studies*, co-author of forthcoming book *The Possibility of Earthquake Forecasting: Learning from nature* and author of numerous articles.

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Civil Protection During Disasters

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Director SUSANA GONZALES JUANGCO is a graduate of Bachelor of Science in Nursing at the Emilio Aguinaldo College. She had finished her Master in Public Health at the University of the Philippines. She is now pursuing her Doctoral in Public Health at the same university. She had attended several trainings both local and international in the field of health promotion, risk communication, heath emergency and disaster management and disaster risk reduction and management. She had her certificate courses on Health Promotion for HIV AIDS at Curtin University in Australia and Risk Communication in Malaysia.

Director Juangco had been involved in the development of several training courses in Health Emergency Management like Risk Communication, Emergency Medical Technician-basic, Public Health in Emergency Management in Asia and the Pacific, Basic Life Support among others. She is also one of the authors of the Training module on Risk Communication of the World Health Organization and the Epidemiology for the Laboratory Technician and Laboratory for Epidemiologist by CAREID. Both training modules are being used by the ASEAN countries.

Director Juangco has also been involved in the development of several reference materials on health emergency and disaster management while she was employed at the Health Emergency Management Bureau of the Department of Health. Likewise, she was one of the TWG who had established the post graduate course on Master in Public Administration major in Health Emergency Management as a collaborative partnership between Bicol University and the DOH.

Director Juangco is one of the technical member representative for the Philippines to the Open - ended Intergovernmental Working Group on Indicators and Terminologies relating to Disaster Risk Reduction and Management. She is also a member of the TWG who went to Cuba and Japan to learn about their best practices on DRRM and how it can be adopted in the Philippines.

At present she is holding the position of Director III at the Capacity Building Service of the Office of Civil Defense, where she spearheads the development of standards on Disaster Risk Reduction and Management Training Courses and the establishment and institutionalization of the National Disaster Risk Reduction and Management Institute or the NDRRMC.

PEOPLE, SUPPLY AND INFORMATION (PSI) RESILIENCE INDEX FOR SMES IN THE PHILIPPINES

Abstract

Philippines Economy is growing at 6% to 7% annually. This growth is primarily fuelled by the large sector of Small and Medium Size Enterprises (SMEs) which contribute about 35% to 45% of the economy in the country. About 90% of business enterprises can be classified as SMEs in the country, which are spread out in the nation to supply the needs of the local community and provide products and services to large enterprises. This sector needs to be aware and has to prepare their businesses mitigate the impact of disaster threats and vulnerabilities to ensure continuity of operations.

The Department of Trade and Industry (DTI) of the Philippines' SME Resilience Survey Report in 2016 shows that 40% of the SMEs business outage takes about 1 to 4 weeks. This prolonged outage contributes to the difficulty of the local economy to recover. In the same survey, 59% of SMEs potentially will lose US$10K to US$50K because of business outage after a disaster. This number is very much significant and will strain the resources of Local Government Units (LGUs) to fuel back the economy. In most local economy the ability of the community to recover depends on how fast the businesses get back on its feet. There were some provinces and municipalities today (i.e. Tacloban Leyte after Typhoon Haiyan) that are still unable to recover economically because of the SMEs inability to cope up and operate their businesses again.

The PSI index for would allow SMEs to prepare their businesses identify the current ability of their business to recover during a disaster. It would be able to show the maturity of the SMEs and the amount of effort or investments require to mitigate and respond to disaster threats. The index will revolve on the most important component of resiliency, its "People". Allowing the SMEs to understand the organization and the ability of human resources to recover and respond to disaster. It will also look at "Supply Chain" which is very critical to SMEs as most of them are connected to a limited supply of products and services in each local economy. The inability of a single SME will affect the entire local economic business value chain. It will also touch on information or data availability to demonstrate simple tools and technology to allow SMEs access to information for their businesses that will provide continuity of business operations.

The Index will be a joint study and collaboration with National Resilience Commission, Humanitarian Leadership Academy and ARISE Philippines. These are partner organization of BCMAP.

The Author

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President

Business Continuity Managers Association of the Philippines (BCMAP)

Mel Cabodil is the current Country Manager of Technology Support Services in IBM Philippines. He leads this business unit of over 100 IT Professionals from various Service Partners to provide technology support to IBM and non-IBM equipment in the country. IBM is largely the IT platform and services used by majority of the key business enterprises in the Philippines.
He is also the President of the Business Continuity Managers Association of the Philippines (BCMAP). An advocacy group of Business Continuity Practitioners to help prepare enterprise in the Philippines be more resilient.

He used to be the Consulting Practice Leader for IBM-Global Technology Services in ASEAN. He was responsible for the development of Infrastructure Consulting Business in the region, leading a group of Associate Partners for Systems Services, Resiliency, Mobility and Network Services. He managed solution development, design and delivery of the consulting business working with the Sales team to ensure that a healthy backlog is in place and working with the Delivery team for successful delivery of the engagements.

His experience and competency led him to various management roles in consulting, sales, pre-sales, project delivery and general business management. He has multinational exposure having been part of various ASEAN roles. He has led Architects, Consultants, Project Managers and other IT practitioners from various countries to deliver IT solution in the region.

His passion for Business Continuity and Disaster Recovery and the need for the Philippines to have a more resilient business infrastructure prompted him to organize a non-government organization of Business Continuity Management Practitioners. He is the founder and the current President of the Business Continuity Managers Association of the Philippines (BCMAP). This is a membership organization of BC/DR Practitioners in the country affiliated with the Disaster Recovery Institute International (DRII) of USA and The Business Continuity Institute (BCI) of UK.

He has established DRI Philippines, a local affiliate of DRI International in the country. DRI International provides training and certification for Business Continuity Professionals globally.

Mel is an Electrical Engineer from Mapua Institute of Technology in the Philippines and has gone thru various International Executive Development Programs with IBM, Symantec and Microsoft

Visiting Tour

The conference will conclude and finalize before lunch on 16th of November, and after lunch there will be a tour to the Office of Civil Defense- National Disaster Risk Reduction Management Council (OCD-NDRRMC) Emergency Operations Center & Earthquake Center.

Mandate

The Office of Civil Defense (OCD), as the implementing arm of the National Disaster Risk Reduction and Management Council, shall have the primary mission of administering a comprehensive national civil defence and disaster risk reduction and management program by providing leadership in the continuous development of strategic and systematic approaches as well as measures to reduce the vulnerabilities and risks to hazards and manage the consequences of disasters.

Mission

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MEDIA COVERAGE OF TIEMS 25TH ANNIVERSARY AND 2018 ANNUAL CONFERENCE

CIVIL PROTECTION IN EUROPE: TOWARDS A UNIFIED COMMAND SYSTEM?

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Abstract

After summer 2017 and its deadly and huge wildfires in Portugal, President Junker asked for "a stronger EU" targeting clearly DG Echo and Civil protection.

The authors stress that it's now time to draw up a project improving European Civil Protection. The idea is to move from the already good modular system of EU Civil Protection Mechanism (EUCPM) to an integrated European command system.

Of course, works and proposals have been inspirited by US Incident Command System, and, despite this one is not suitable to Europe, the wish is a robust and unique, European Command System (called ECS), which could increase efficiency at three levels:

- At first, when the Emergency Response Coordination Center (ERCC) reinforces a member state with an incident management team.
- The second layer could be to build an international command team for large incidents involving many member states.
- The third level is focused on outside EU when EUCPM send modules to tackle to disasters overseas. For this stage, ECS has to be interconnectable and fully interoperable with UNOCHA and US ICS.

ECS will help to reinforce interoperability between the MS and in the states themselves: a real EU would add value for citizens.

Keywords:

ICS; Crisis Management; Incident; Command System; Interoperability; European Union, ECS. Civil protection in Europe: towards a unified command system?

Introduction

The area of large incidents and disaster management is a tricky world, a dreaded position and a place of covetousness, influences and domination. Academics regularly contribute[1] [2], sometimes on a heterogeneous manner, to this vast domain. Many collaborative EU funded projects (FP7 and then H2020) related to "Security" research topics are contributive too, e.g. projects CRYSIS, and ACRIMAS [3], have led to fruitful

[1] Topper B., Lagadec P. ; « Fractal Crises - A new path for crisis theory and management » ; in special Issue Exploring the Theoretical Foundations of Crisis Management of Journal of Contingencies and Crisis Management, Wiley-Blackwell ed. ; Plymouth, March 2013.

[2] Wybo J.L., Latiers M.; « Exploring complex emergency situations' dynamic: theoretical, epistemological and methodological proposals »; in International Journal of Emergency Management, Inderscience Publishers ed.; Geneva, 2006.

[3] Fraunhofer coord. collective work; ACRIMAS final report; UE Research executive agency ed.; Brussels, 2012.

inputs on the situation and needs. Other ones (DECOTESC1[4], CBRNEMAP[5], EDEN[6]) have focused this view to the peculiar domain of "new risks" (CBRNE) and terrorist threats.

Today, in a changing risk landscape, and after many destabilising incidents (terrorism in France and Belgium, wildfires in Portugal…) more than ever, and clearly under the leadership of the Emergency Response and Coordination Center (ERCC) of the Directorate General Echo, the issue of empowering the European civil protection mechanism is to be solved.

Requested by many strategic authors[7], a harmonisation tool would give the European citizens security and civil protection adapted to the breadth of the territory and the acuity of the challenges.

The following paper constitutes an essay, on an academic manner, written by practitioners. This means that this work has no ambition to be transformed into guidance, but aims to provide insights and opinions of first responders, in order to integrate current global trends, in the awareness of the European constraints, and the reality of the risks.

After a brief description of the US Incident Command System (ICS), and identifying possible contributions that the ICS could give to European operating modes, we will successively envisage proposals at national, cross-border, European and international levels. These studied and imagined transfers are supposed to give a help in the transformation of a rescue operation toward the steering of an inter-services (and even international) large-scale event.

Eventually, we describe a strong opportunity for the European Union to establish a unique and *sui generis* operational command and control system, which have to be interoperable with the other major pre-existing global ones, without being enslaved to them. Hence, the globalisation of crises and response systems goes beyond simple interoperability towards a mode of governance.

What is ICS?

Some decades ago, ICS was founded to tackle Forest fires and for natural hazards management, and quickly recognised as an efficient inter-agencies control system, used by the US Forest Service since the 1980s.

After 11 September, following an *ad hoc* decision of the federal government, the concept was rapidly and widely spread in the United States. Now distributed all over the territory in its "All Hazards Management" version, ICS today involves thousands of civil servants, foresters, police officers, firefighters and elected officials who constitute more than 15 regional teams. At highest level, known as type I, these "Incident Management Teams" [see below IMT, Fig.1], are constituted with 50 specialists on 24/7 duty,.

And now, whereas ICS is disseminated on several continents, it seems at least urgent to take it in account, for European concerns.

The FEMA (Federal Emergency Management Agency, www.fema.gov) is responsible, through its National Incident Management System, for organising, teaching and training, for this doctrine.

In France, some officers, less than 20, belonging to Fires departments have acquaintance to this system. After some international works on High Reliability Organisations (HRO), introduced by academic partnerships between Aix Marseille University, and the California University of Berkeley[8] [9], some Fire

[4] Van den Brink M., Nieuwenhuizen M. (TNO); DECOTESSC1 final report; UE Research executive agency ed.; Brussels, June 2011.

[5] Fraunhofer coord. collective work; CBRNEMAP final report; UE Research executive agency ed.; Brussels, March 2012.

[6] BAE systems Ltd coord. collective work ; "Europe's resilience to threats gets better"; EDEN final brief report; http://cordis.europa.eu/result/rcn/197373_en.html; UE Research executive agency ed.; Brussels, April 2017.

[7] Brisset J-V. ; « Europe et Nrbc : quel est l'état de la coordination européenne en cas d'attentat terroriste Nrbc ? Quelles perspectives ? » ; tiré à part, Iris éd. ; Paris 2006.

[8] Hardy K., Comfort L.K. ; « Dynamic decision processes in complex, high-risk operations: TheYarnell Hill Fire, June 30, 2013 » ; in Safety science, Elsevier ed. ; Amsterdam, 2014

departments of south of France started instruction of their senior officers in 2008. After 4 years, 15 officers have been qualified by American, Canadian, South African and Australian coaches, until IC-420 level (more than 200 hours). Some of these officers practised during real operations in Australia (with New South Wales Rural Fire Service and Victoria Fire Service) and in the US (with the USDA Forest Service)

Then, the question arose: what relevant elements can be transferred from ICS to EUCPM with added value?

How to develop this European Command System?

In our continent, characterised by more centralised systems, and less dependent of a large amount of various agencies, the empowerment of existing system (EUCPM), has to be defined by and for the responders' community. One of the critical issues is to be interoperable in and through the member states, and it's mandatory, simply because other systems are neither transferable nor suitable to European concepts, methods and history.

At this point, it's helpful to have a semantic debate on the terms of "crisis" and "crisis management": theses word, initially depicting the loss of control of the decision body and its paralysis, have progressively been stripped of their meanings, to describe big incidents and incident management. Thus, big incidents are not, obviously, crisis, and the misbalance between available and needed means is not enough to characterise the crisis itself. However, random or quick evolution, lack of decision, power struggle surging, all these

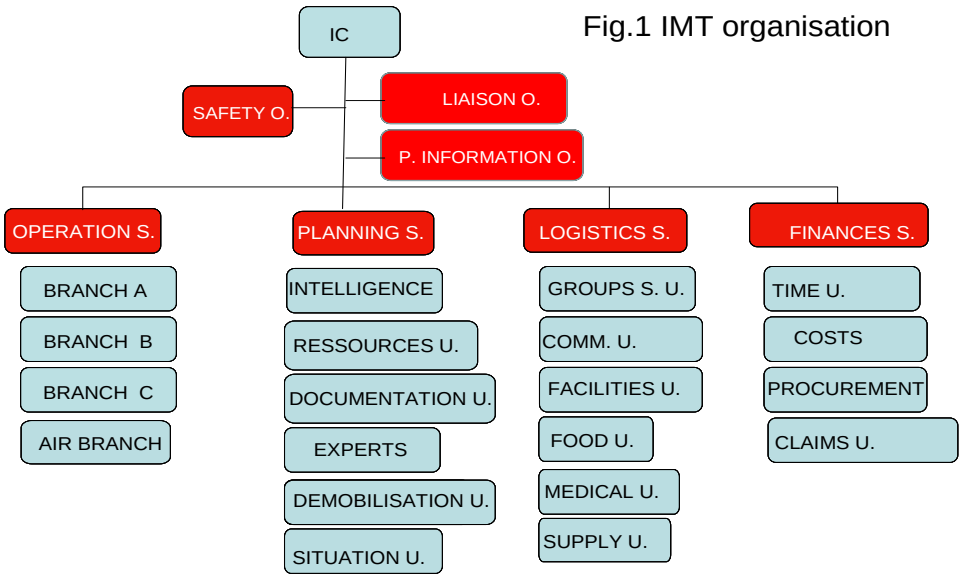

Fig.1 IMT organisation

weak signals need to be tackled in order to avoid crisis occurrence[10]. In this purpose, the US classification of incidents [see below Table 1] could be used in order to provide harmonisation at international level.

[9] Vidal, R., C. Arnaud et B. Tiberghien ; « Fiabilité organisationnelle et maîtrise de la tension entre contrôle et écoute dans la gestion des incendies de forêt : approche comparée France/États-Unis », Télescope, revue d'analyse comparée en administration publique, numéro spécial sur la gestion des risques, vol. 16, n° 2, p. 59-74 ; Enap éd. ; Québec, 2010.

[10] Dufès E., Ratinaud C. ; « Situations de crise : une réponse modélisée en 3D » ; in Perspective n°12, p. 57-78 ; Ensosp éd. ; Aix en Provence, juin 2014.

Table 1 : Incident classification

Type I	Huge incident	i.e. on shore pollution lasting weeks P>500
Type II	Big incident	i.e. Bushfire lasting 3 days P<500
Type III	Important incident	i.e. Railway crash lasting one day with multiple assets
Type IV	First level of incident implying transfer of command	i.e. structure fire
Type V	Small usual mission dealt by one or two assets.	i.e. EMS mission with one ambulance

Core of the Civil Protection Mechanism, the future European Command System (let's call it ECS) would have to be taught to EU police services, fire departments, and emergency services, and has to be ICS compliant. This future system has to be developed under control of the DG Echo[11]. the inspiration of the American National Incident Management System (ICS management); especially the management position of the FEMA towards teaching and giving public information can be transposed to this directorate.

Local Emergency Management Authorities, (LEMA for EUCPM) are substantially different from the Authority agencies involved in ICS in the US: they are more state and policy related in Europe. Therefore, the relationship aim and formalisation between the incident commander and the LEMA have to be defined.

More technically focused, the planning / anticipation structure, and its "P process" metronomic engine of the ICS system, can be retrieved with little modification. It will guarantee perfect overseas interoperability for Europe projected civil protection forces, which must inevitably collaborate with foreign and / or UN systems.

The logistics / means function, too, appears to address correctly the needs of a long and vast operation management.

On another hand, the two others branches, operations and finance, have to be adapted.

Operational branch will be quite difficult to develop with regard to the specificities of the EUCPM, and secondly, in order to address the existing national systems and their specific issues.

The financial function could, at the opposite, be progressively built on a standardised European framework. Even if this approach doesn't exist in Europe, the accountability of the solidarity within the Union will soon be a real need and a requirement for the different bodies of the Union (Commission, Parliament etc.).

For large incidents, the added value of this EU system could be in providing and establishing an interoperable framework of art of command, adaptable at state and at European level. *DG Echo* would obviously steer this mechanism by guaranteeing the standardisation of training procedures and the commitment of teams at the request of a Member State. *EUCPM would have to spread the new defined knowledge, largely, with more instruction, more courses, more exercises.*

A first level respectful of existing national systems

Analysis demonstrates that Europe, historically, has a first response organisation adapted to current hazards and large incidents. Its population density, communications networks, advocates for a quicker command system deployment rather than in big continental states (US, China, Russia, Brazil, India, Australia). Historical features also support a complete respect of national mechanisms.

[11] Maestracci B. ; « La gestion de crise, perspective européenne » ; in Perspectives n°9, p. 159-161 ; Ensosp éd. ; Aix en Provence, janvier 2013.

In France, for example, the system of successive transfers of command, from appliance chief until gold commander remains an effective tool, well taught by fire academies for 20 years[12]. Introducing 5 level of command instruction, firemen courses are satisfactory to instruct incident commanders, called in France operations commanders (COS). On a practical point of view, sub-officers and officers play correctly the 5 levels of command, vesting the right chief for the right mission in the day to day work and towards large incidents. Of course, at inter-agencies level, and in terms of interoperability, some improvement can be achieved. Lessons learned from recent sizing events (Storm Xynthia, Flooding in the South in 2010, large wildfires in 2016, terrorist attacks in 2015 and 2016), regularly set the question of organising and teaching a 6th level of instruction, more focused on inter-agencies management for large-scale events.

At European level, national features held by member states allow them to carry out crisis avoidance or at least to minimise the scale of accidents. Recent works by some member states improve their control systems, creating interfaces, or making them interoperable with global systems.

In Spain, for example, the technical unit of GRAF, in the Catalonian Fire Service, has developed a high level planning capability to enhance strategies and tactics chooses when tackling forest fires[13], it is totally operable in the command system.

Others examples could be described too… In UK, National Policing Improvement Agency issued in 2009 guidance[14] to deal with and better organise multi agencies interoperability.

But, in order to improve, each member states could appoint and train one or two incident management teams on duty 24/7. The progressive harmonisation in the management of big incidents (after the first 48 hours) may also be provided by a European formative curriculum giving a common knowledge in addition to national instruction. And of course, it would also allow the strengthening or inter-national replacement of these teams, if the incidents supposed to last several tens of days.

In France, for example, two interagency Incident management teams of 40 people could be kept on duty 24/7, one for the southern half and one for the northern half. This posture would involve additional training for about 500 officers in the country, following by practices and with the help of the Union. We see that this effort would not be out of reach and would at least allow a considerable step in the harmonisation of the treatment of major events as well as the possibility of accepting or supplying a team to another member state.

It is precisely when the magnitude, duration, stakes or complexity of events increases that Emergency response coordination center (ERCC) could pick up these on duty people, educated to both EU and national command methods to reinforce a member state facing to this kind of important or long lasting operation.

A second level, European, regional and cross-border

In Europe, for what ICS call type II and type I incidents [cf. Table 1], typically those exceeding 100 km² and / or having duration of more than three days, many studies report on best practices or common operation pictures, but rarely on the command system point of view. After introducing RescEU improvement in November 2017, it's time for DG Echo to go further than a modular system[15] to build the new deal on civil protection of the Union.

The targeted incidents are large-scale and cross-border natural ones: for example, storms involving two or three European countries, or a series of discontinuous but identical regional disasters, such us dozen

[12] Pandelé P. ; « La méthode de raisonnement tactique d'état-major niveau 1 » et « Le poste de commandement du chef de site » ; documents pédagogiques, Ensosp éd. ; Nainville-les-Roches, 1997.

[13] Molina D., Castellnou M., Garcia-Marco D., Salgueiro A.; « Improving Fire Management Success through Fire Behaviour Specialists», in « Towards Integrated Fire Management », p105 [Outcomes of the European Project Fire Paradox]; European Forest Institute ed.; Joensuu, 2010.

[14] Collective booklet, "Guidance on multi agency interoperability", ACPO and NPIA ed., Wyboston, UK, 2009.

[15] **Decision No 1313/2013/EU of the European parliament and of the council of 17 December 2013, on a Union Civil Protection Mechanism.**

of forest fires involving 3 to 4 countries, or large floods across several countries, along the same river basin or, eventually, technological accidents such as trans-boundary nuclear crises.

In such situations, the Union must be able to provide a structure of coordination, arbitration and command to the affected states. Of course, this would be done after each concerned Member State have engaged its own Incident Management Team. At this time, the ERCC could project at international level, an "International Rescue Operations Commander" by order of the European commission or Council of EU, with a dedicated team inspired by the structure described in the previous chapter. Will it be eventually culturally and legally acceptable?

The team should simply be collected by DG Echo's ERCC in the non-concerned Member States IMTs and in the pool of managers trained in the European Civil Protection Mechanism. The "International Rescue Operations Commander" would be a senior officer, from the ERCC or member state civil protection. This commander would have to report to a policy maker, could be called International Emergency Management Authority (IEMA). This Union high ranked civil servant, diplomat or minister should be appointed by the Council of EU or European Council itself.

The missions of this IMT will be inspired by the mechanism described above, and the main adaptation may be on the operational branch, which has to be reduced since this function is done, by the different national teams on the various sites.

Once again, anticipation / planning function will be crucial, entirely oriented towards arbitration and the designation of priorities. To do so, it should operate in a time cycle adapted to arbitration and support to the homological structure in the national IMTs.

The means/logistic function would become the sole international contact of national IMTs, transmitting after arbitration the needs to the ERCC, and allocating them in return.

The finance structure could at this stage, constitute a real added value, consolidating the financial reports of national IMTs, giving a permanent a view on accountability, approached costs, for the IEMA and the commission.

A third layer for overseas and international aid

This third level is focused on outside EU when EUCPM send modules to tackle to disasters overseas.

Responding to principles of international aid, it gathers operational modules and a European Incident management team, organised following the previously depicted principles.

For this stage, our system has to be interconnectable and fully interoperable with existing systems such as UNOCHA and US ICS. The system versatility and the fully competence to be taught would allow to this detachment to respond to various emergencies, and depending on situational conditions, in total autonomous command or under a foreign country command.

Conclusion

We tried here to point out three crucial issues, which in evidence have to be further studied.

- What ideas and parts of ICS would provide genuine added value to European command systems?
- How to upgrade, by definition and training, our current command systems, to tackle significant incidents that, because of their stakes and complexity, go beyond the usual framework of civil protection?
- How can EUCPM increase interoperability in the states and over, towards existing ICS and UN command systems?

In order to achieve these goals, we conclude that it’s possible to imagine a body of doctrine, based on the items of this paper. Operative, interoperable, respectful of sovereignties, this system will match deeply with the needs and wishes of what EU think tanks want[16], in terms of solidarity, for the Union and non-

[16] Klossa G. and all.; “The European way for a better future, contribution to the reflection on the future of the European union”; Report ; CIVICO Europa ed. ; Brussels, March 2017.

European regions. This model has, of course, to be inspirited by several declinations of US ICS (Unified Command, Area Command and Interagency Command), and UNOCHA / UNDAC / INSARAG certification. In this aim, and under these conditions, our proposal is more suitable to civil crisis domain, rather than military and other planning methods.

First national steps can be anchored on civil protection and fire and EM services structures, because innovation and lessons learned are the DNA of these European organisations. Fire and civil protection academies could be the local support of this European command system, in the aim to teach largely first interoperable steps of knowledge. These national courses would constitute the national part of EUPCM education, in addition to superior degrees taught at EU level.

Today, European civil protection improvement has to pass through a crucial choice: do we have to let national command systems on a standby mode, including the risk of seeing the imposition of other standards (ICS and UNOCHA)? Or do we really decide to invent a new civil protection system different from US standards but with a top level compliant with these systems?

Structurally, EU member states have a traditionally centralised conception of civil protection policies driving advanced technologies, efficient means and people. The command system has to take it in account, and to catch up this opportunity to build an *ad hoc* system with a strong institutional backbone, fully interoperable and internationally compliant, comforting the central position of DG Echo.

And now, in this very peculiar moment for EU resiliency reinforcement, after research, reports, studies and projects, we must act. Act in order to go beyond our obsolete heterogeneity, act to harmonise, act for future, and act to exist.

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INVITATION TO PARTICIPATE IN RESEARCH PROJECT ON CHALLENGES OF UNSOLICITED DONATIONS

Dear friends and TIEMS experts,

We know that surges in non-priority donations in response to a crisis can impede rapid flows of critical supplies to affected populations because they can overload and block supply systems. What we don't know is how we can plan to deal with this material convergence in different disaster scenarios and whether we need different approaches contingent on the circumstances.

Prof. Paolo Trucco, Prof. Christine Harland and Dr Yasmine Sabri of the School of Management, Politecnico di Milano (Italy), a leading international business school, propose to conduct a survey of experts in the TIEMS network to provide practical guidance to further understanding of this complex problem. We have researched existing knowledge and propose to investigate whether mobilisation and coordination of supply chain resources may need to be planned and executed in different ways to suit different disaster profiles. As academic experts in crisis management, inter-organisation network strategy and supply chain management, we view this initial research as a way to provide rapid information to TIEMS that could be used further to investigate more in-depth issues arising from the findings.

This invitation has been featured earlier in TIEMS Newsletter and the president's email early August. **We kindly ask that TIEMS members respond to the survey by 1st December 2018 using this link** https://www.surveymonkey.com/r/MatrialConvergence. The links allows you to choose between filling in the survey and **opting for an interview** with our research team; in that case you will be directed to provide your contact details and we will get in touch with you soon.

In return for this rapid response, we will provide back to the TIEMS network a report of practical findings by the February 2019. We will also present and discuss findings at an appropriate TIEMS event.

We greatly appreciate your support in this research and look forward to greater collaboration with your influential network.

Paolo, Christine and Yasmine

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ARCON METHOD SUMMARY

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Arcon Method is a training and intervention system for search and rescue dogs (earthquakes, avalanches, landslides, hurricanes, explosions...), anti-personnel mines detection dogs, endangered animal species detection dogs…

Key words: Arcon method; Behavior; Detection dogs; Rescue dogs; Dog training method; Jaime Parejo; Jaime Parejo Garcia

INTRODUCTION

Arcon Method is a training and intervention system for search and rescue dogs (earthquakes, avalanches, landslides, hurricanes, explosions...), narcotic detection dogs, explosive detection dogs, anti-personnel mines detection dogs and endangered animal species detection dogs. It was created by Jaime Parejo after twelve years of study and research. The method was deemed finished in October 1994, and he chose the name Arcon in honour of his pet and pioneering student. The Arcon Method proven success in rescue operations has led it to win numerous major official awards both nationally and internationally, such as the First Prize for Research granted by the Spanish Royal Canine Society and the Sasakawa Certificate of Distinction from the United Nations.
Ten years later, it has also been adapted by many different police corps (Ecuador, Colombia, Venezuela, etc.) to detect explosives, narcotics, anti-personnel mines and endangered animal species, as its greater effectiveness compared to all the traditional systems has been demostrated.

The Arcon Method is primarily based on a set of seven innovative behavioural tecniques which complement each other and have an effective impact on three fundamental, interrelated parameters in search operations: autonomy, motivation and concentration. The moulding processes (reinforcement of successive approximations to the desired response) that characterise traditional canine search training methods and which are still currently used, are excessively limited to basic or primary learning processes (classical conditioning, operant conditioning, avoidance, extinction, generalisation, discrimination, cognitive perspectives, etc.). However, the same does not hold true with the Arcon Method. After twelve years of persistent, intense and complex endevours entailing observation, study, measurement and analysis of variables and responses, verification of multiple hypotheses and field experimentation, in short, scientific research, Jaime Parejo, a tireless, rigorous scholar andresearcher into animal behaviour and learning, was able to painstakinly develop a series of techniques that are minutely interrelated and ultimately manage to positively optimise the possible levels of autonomy, motivation and concentration of the animals when performing operations involving searches for buried people, either outdoors or in confined spaces with no visibility and living space reduced to the minimum feasible displacement values. With the aforementioned enhancement of the levels of motivation, working, autonomy and concentration, fulfilment of the objetive set from the start, namely better speed and efficacy when locating buried persons, was repeatedly verified (with a substancial, noticeable operative difference). The first canine rescue unit that Jaime Parejo officially assembled using this system was for the firefighters of Seville (Spain) back in 1996. Since then, official guides, instructors and rescue dogs have been trained and certified for important firefighting squads and police corps in a number of countries where there is a heightened risk of disasters (Colombia, El Salvador, México, Ecuador, Chile...).

This revolutionary trascendent scientific method has enriched and expended especially the field of animal learning. For several years now, this has also in parallel led to the rescue of buried people in several countries. It has also the Arcon Method to be chosen and approved by governments as the official training and intervention system, and this method has also been officially adopted by the leading emergency squads and security forces and corps in countries with a high risk of earthquakes. The 250 hours in the official basic Arcon courses specialisation are devoted virtually in their entirety to the introductory theoretical-practical transmission of the complex dynamics of application, interaction and performance of the Arcon techniques, in both training and in accident interventions. The Arcon Method is regarded as a major step forward for humanity, and it is currently the sole rescue system with official status, due to its exceptional efficacy in searching for and localising buried people. Following are

several examples. Since 1999, many living people buried in extreme difficult search conditions have been localised by the Canine Rescue Units of firefighters, Police Forces, Civil Defense…

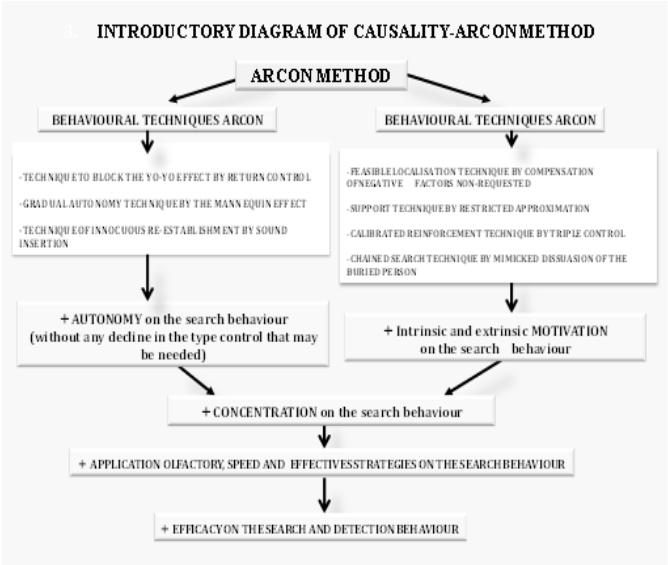
In 2005, the Intervention and Rescue Group of Ecuadors National Police Force demonstrated the unique effectiveness of the system for detecting explosives by winning first prize in the International K-9 Competition in Indiana, United States for Police and Military Corps, after vying for the prize with leading units from the United States, Canada and Latin America. Since 2006, the number of anti-personnel mines detected by the Mobile Customs Squads of Colombias National Police Force has increased. The number of endangered animals detected by the Environmental Protection Unit of Ecuadors National Police Force has also risen, thus stanching the illegal trafficking of these animals in the Galapagos National Park, the Canine Brigade of the Caracas Police Corps has stepped up its detection of narcotics and explosives, etc. The basic instruments used when applying the Arcon techniques include:

The guides bodily comportment. A methodical process of analysing and observing canine behaviours and work environments. Individualised and constant technical dosage of the behavioral resources. Painstakingly-designed procedure of interaction amongst all the behavioral techniques. The animal trained using this method tends to more intensely exploit its physical and psychological resources during the search process in a way that is particularly natural, voluntary and fruitful. Below is a very basic, schematic assessment of the incidence of the Arcon Method on the three main parameters: autonomy, motivation and concentration.

Autonomy: There is repeated proof that when a dog experiences a higher degree of work autonomy, its degree of concentration on the job increases in a parallel fashion. This system allows this level of autonomy associated with a solid focus on the search behaviour to be optimised. The animal dissociates from the guide without any harmful interruptions in its line of search, such as sporadic returns to the guide or bodily actions with the goal of catching sight of the guide. We stress the fact that excessive participation by the guide (a very common mistake), either verbal or physical, during the canine work behaviour generates the consequent negative expectation of support in the dogs memory storage, which only becomes more pronounced and meddlesome during the search as time goes by without the animal having managed to perceive the desired scent stimulus of a potential buried person. There are three main Arcn techniques that taken together largely enable the goals on the expected working autonomy to be achieved:
Technique to block the yo-yo effect by return control (applied preventatively). Gradual autonomy technique by the action of the mannequin effect (applied in the phases of education, training and occasionally in intervention). Technique of innocuous re-establishment by sound insertion (applied occasionally in the initial education phase).

Motivation: Applying this system generates in the animal a motivational drive that is especially strong for this type of work, thus fostering the dogs levels of intensity, perseverance and concentration during the search operation, as well as shielding it from possible deviating stimuli. There are four Arcon techniques aimed at preserving or nurturing this level of specific motivation: Calibrated reinforcement technique by triple control (applied in education and training phases). Feasible localisation technique by compensation of negative factors (a technique that helps to keep the dog motivated in the search by eliminating some items in the field that may adversely affect its search, such as passing animals, food, etc- this technique is applied only in educational phases, and occasionally during training). Chained search technique by mimicked dissuasion of the buried person (a technique used to dissuade the dog from stagnating at the first buried person and to encourage it to go and find the next buried person. It is applied in the phases of education, training and during interventions). Non-requested support technique by restrained approximation (a technique based on providing moderate support to the dog to help it find the buried person. the support is only given when not requested and is applied occasionally only during the initial stages of education to keep motivation high). It is important to bear in mind that in the education or learning phase, the animals experience of not successfully achieving the goals, that is, of failure, will lower the expectation evoked by the training activity and the respective setting, thus seriously jeopardising the degree of motivation required to face the learning process and for the future performance of the search work. This negative circumstance can be avoided by applying the aforementioned techniques, while they also contribute to the fact that the mere search and the environment of rubble in themselves generate a powerful reinforcement effect for the animals. The search activity provokes in dogs a positive rise in their excitation level, which is added to the motivation spurred by the incentive.

Concentration: In this case, the animals degree of voluntary attention in the search will be primarily associated with the two previous parameters (autonomy and motivation), and will not be dependent on a possible application of specific techniques. The dog trained using this system shows a visible and continuous high degree of concentration in the search, experiencing a solid line of attention. Concentration could be defined as the organisation of the animals attention in order to perform a given task. In the case at hand this entails the olfactory process of sniffing with the goal of capturing human scent molecules in the air that allow the animal to head towards the source, namely, the person buried among rubble, earth, snow, clay, etc. A higher level of concentration will enhance the application of the dogs olfactory reception and elaboration devices, thus limiting its field of awareness and in consequence fostering its ability to capture the scent of persons who may be buried.



ARCON METHOD TECHNIQUES

2.1 Technique to block the yo-yo effect by return control
2.2 Gradual autonomy technique by the mannequin effect
2.3 Technique of innocuous re-establishment by sound insertion
2.4 Feasible location technique by compensation of negative factors non-requested
2.5 Support technique by restricted approximation
2.6 Calibrated reinforcement technique by triple control
2.7 Chained search technique by mimicked dissuasion of the buried person

The Arcon Techniques are strictly faithful to the rational demands of the conventional scientific technique and have been repeatedly subject to the corresponding process of experimentation and verification

Technique to block the yo-yo effect by return control

Objective

To avoid possibly generating the yo-yo effect in the dog by applying a series of specific preventative guidelines. The yo-yo effect is a behavioural phenomenon that I discovered in certain dogs, who systematically returned to their guide after going a certain distance, thus obeying a type of entrenched mental inertia. This is a habit that is especially detrimental in canine rescue work, which impairs the dogs autonomy and initiative in search operations.

Circumstances when applied

Fundamentally when the dog makes some type of return to the guide, or stays away waiting to be called.

Basic guidelines

- Keep the use of call orders to a minimum. I have noticed that excessive use of call orders was the main cause leading dogs to acquire this habit.
- When the dog returns, avoid any type action that implies a certain reinforcement effect (saying affectionate words, petting, play-type behaviour, etc.).

Gradual autonomy technique by the mannequin effect

Objective

By managing to get the dog to dissociate the guide as a possible support element, we will gradually enhance:

- The level of autonomy and concentration in the search.
- The scope of the reinforcement due to the important effect of the contrast produced from the guides unchanging mannequin attitude to the subsequent active, euphoric reinforcement.
- The dog duly remaining at the location point while signaling.

Circumstances when applied

When in the working session the dog returns to the guide or without distancing itself from the guide tries to draw his/her attention in any way (barking, standing on hind legs, etc.) the guide should assume the mannequin pose, giving reinforcement in a rational and balanced way in working sessions or real interventions.

Basic guidelines

The guide should always keep a firm, inert and unchanging stance before the dog, omitting any type of physical (even facial) or verbal reactions, as if s/he were a mere mannequin.

Technique of innocuous re-establishment by sound insertion

Objective

To innocuously re-establish the dogs working behaviour in view of possible deviating distractions. Generally speaking, as repeating the search order is regarded as harmful due to its negative incidence in the dogs line of initiative, I chose to select this peculiar procedure, which is highly effective

Circumstances when applied

This resource can be applied under the relative silence that tends to characterise the initial stages of learning, although obviously it would not be feasible in a search operation with adverse auditory factors. However, it should be borne in mind that a dog in that phase no longer suffers from the same fragile susceptibility as at the start, since their own ability to re-establish their behaviour has also been substantially developed.

Basic guidelines

The dogs perception of a brief interfering noise provoked occasionally (something dragging on the ground, the blow of an object, etc.) causes a type of instantaneous rupture in their deviated and incipient line of attention, acting as a sort of

fleeting pause after which the desirable base conduct is once again re-established. - We should try to ensure that the dog does not perceive the source of the sound made. - The sound issued should be inserted as simultaneously as possible with the dogs manifest distraction and intensely enough without being excessive to achieve the OBJECTIVE in each instance.

Feasible location technique by compensation of negative factors

Objective

- To ensure that the dog is successful in the search work without undermining the target learning progress of the exercise.
- To preserve and foster the dogs motivational state, which is key for the proper evolution of the learning process.
- To avoid detrimental situations of failure and frustration in the initial training stage, thus fostering an increase in the positive stimulus that the rubble environment should provoke in the dog.

Circumstances when applied

During the learning phase and occasionally during training.
Basic guidelines

- An analysis and differentiation should be carried out on those factors or elements that might hypothetically affect the dogs search either positively or negatively (level of motivation, presence of major stimuli, weather conditions, etc.).
- We should then define the basic lines of the exercise to be performed, obeying a supposed state of balance or prior compensation that makes it possible for the dog to achieve success with the corresponding progress and without support from the guide. We shall primarily intervene on basic factors that can be manipulated, such as the position of the release point or the location of the hideouts.

Non-requested support without request technique by restricted approximation

Objective

- To carry out a successful search. - To increase the level of security when signalling the buried person.

Circumstances when applied

- This technique is exclusively applied in those occasional cases when providing controlled support is considered less counterproductive than the dogs imminent failure, although repeated use of this technique could jeopardise the dogs potential autonomy.
- When a certain dose of insecurity negatively affects the signalling guidelines.
- This is mainly used during the initial learning phase.

Basic guidelines

- The guide approaches the dog by walking soberly towards the localisation point (where the dog tends to be) without any type of extraneous movement or verbal utterance. The guide should stop when s/he estimates that s/he has conveyed to the dog the minimum support needed.
- This technique should not be applied should there exist a prior request for support or a return by the dog to the guide, with the goal of avoiding possible negative conditioning.

Calibrated reinforcement technique by triple control

Objective

- To enhance the positive effect of reinforcement
- To foster the signalling pattern when needed
- To control the positive achievement of success by the dog in the search task, thus preserving and fostering its motivational level towards the activity.

Circumstances when applied

During the initial learning and training phase especially when carrying out chained searches.

Basic guidelines

The instructor places him/herself at a strategic point that allows him/her to observe with minimal interruptions the behaviour of the dog carrying out the search and act in consequence. S/he will control three fundamental variables via the transceiver:

- The specific stunt person who effects the reinforcement.
- The best time to start the reinforcement.
- The type of reinforcement (intensity, duration, etc.). The instructor must previously evaluate an entire set of essential factors:
- Learning goals of the exercise.
- Signalling by dog (fluency, perseverance, target, etc.).
- Energy or motivational state observed in the dog.
- Possible states of confusion or inhibition in the dog.

In fact, during the exercise the instructor should capture and analyse any meaningful nuances reflected by the dog during the search or signalling action in order to thus truly effectively control the three aforementioned variables.

Chained search technique by mimicked dissuasion of the buried person

Objective

– To keep up the dogs required levels of autonomy, motivation and concentration during possible consecutive searches and their respective signalling.

Circumstances when applied

- In search operations during learning, training or intervention.

Basis Guidelines

When the guide notices that the dog is signalling one of the hidden extras, s/he shall approach the dog at a run to reward it with a discreet pet and a brief verbal congratulation (in a real intervention, mark the rubble with spray paint should the victim not be accessible), attach the leash quickly to the dog and in plain view make a energetic, determined bodily turn away from the signalled point, which should remain then at the guides back. Then s/he should turn towards the new area to be searched, and a new search begins. I have seen that this bodily avoidance action by the guide at the signal point tends to provoke in the dog a special dissuasive effect, usefully freeing it from the attraction exerted by the extra and thus fostering its predisposition to try to localise another buried person, especially driven by the expectation of the chained search already created, in which the reinforcement comes unpredictably. The guide should try to ensure that this back -turning is seen by the dog, and should always keep the point signalled by the dog at his or her back. Likewise, the possible sense of frustration that could be sparked by the total lack of reinforcement is positively attenuated by the discreet reinforcing actions of the guide, thus avoiding the emergence of a possible inhibiting effect. We should take advantage of this incipient sense of frustration, a certain impulsive drive, which will serve to energise and motivate the next search behavior.

Phases in the training process Arcon

3.1 Signalling
3.1.1 Exposed Chest
3.1.2 Concealed Chest

3.2 Simple Search (one buried person)
3.2.1 Introductory Rubbish Heap
3.2.2 Working Rubbish Heap

3.3 Chained Search (two or more buried persons)
3.3.1 Two Buried People
3.3.2 Three or more buried people

3.1 Signalling (Exposed and Concealed chest)

The goal of this phase is to condition the dog to emit a bark towards a non-visible human located underground. The dog must have previously become accustomed to share play with unknown people, as well as the act of barking fluently, due to the simple natural impulse generated by the excited desire to share this play with a determined object. It should be pointed out that conditioning the dog to bark at any visible person to play should be avoided, as the dog might learn to bark to achieve goals in other situations. I also believe that the bark should not be conditioned to a prior order, which would generate in the dog a wrong expectation. The dog would have previously been subjected to several days of deprivation of fun activities and exercise. By doing so, we foster the momentum needed to energise the execution of these first few guidelines while simultaneously increasing the positive effect of reinforcement. The extra (stuntman) must be a person that the dog knows (but not the guide), thus fostering the initial degree of trust and stimulation needed. From the start, the dog dissociates from the guide as a possible primary element-goal. The dog must previously become familiar with the setting where the chest is placed. We should use whatever motivator provides the most incentive for the dog (ball, roller, doll, stick, etc.), clarifying that this should only be used in the initial stage of learning with the purpose of dog associating its simple specific smell as the sole discriminatory stimulus it reacts to by signalling and thus avoid signalling towards the buried person, who will not have this stimulus.

We should avoid working under adverse weather conditions (high temperatures, heavy rains, etc.) that could spur negative reactions or distraction in the dog. The observers should place themselves at least 15 metres from the working area and avoid movements, postures or sounds that might distract the animals behaviour. In this initial phase, the dog will be especially susceptible to any type of distraction, yet it is fundamental for it to perform successfully. For this phase, I feel a special predilection for the use of chests located on paved surfaces (asphalt, concrete, etc.) with no traffic. Obviously, with pavement we substantially minimise the potential presence of interfering olfactory stimulants, which nevertheless would be inherent in what we call the terrain. We should remove any object or material from the surface that hypothetically might erroneously draw the dogs attention (tools, clothing, excrement, etc.). At first a hard wood or plastic lid should be used, as they are more manageable and durable (with a handle in the middle). The dog should first be left in a zone away from the working area for a few minutes so that it may urinate, defecate and relax. This is a general rule in the entire learning phase. Bare chest: 1st step The guide with the dog on a leash should head towards a place around 20 metres in front of the chest (variable according to the motivational state observed in the animal). During the walk towards the leash release point, is removed the guide must emotionally activate the dog, mentally warming it up for the job. The guide should not repress any possible valuable impetus shown by the animal by avoiding, for example, the use of extensible leads or pull backwards on the lead. The extra will be waiting for the guide halfway between the chest and the release point. S/he should make movements to incite the dog, showing the dog the motivator and making voices that truly stimulate it until achieving a positive effect of attraction on the dog.

When the extra deems that the dog has been provoked to a sufficient degree of excitability and impetus, s/he will quickly move towards the chest and will get into the chest, in plain view of the dog, repeating the stimulation moves before immersing him/herself fully in the hole and covering him/herself with the lid. The instructor should carefully observe the dogs behaviour outside and indicate to the hidden extra (by means of a transceiver) the right time to reinforce the emission of barking (even though the extra might hear the dog barking, s/he cannot know whether the barking is addressed improperly to the guide or another element, and thus whether or not s/he should stop the signalling based on the possible state of inhibition or another aspect in the dog. Thus, technical guidance from the outside is necessary). The extra should not verbally praise the dog precisely when s/he is indicated as this might dovetail with a silent pause. This praise should, to the extent possible, be simultaneous with the next bark issued in order to thus foster the required time contiguousness that

allows for proper association and conditioning. Immediately afterwards the lid is removed and the extra immediately praises the dog by petting it and encouraging it to draw closer in order to thus heighten its level of confidence in this strange new situation. Now is when the guide may approach the dog to praise it and pet it as well. The extra may come out of the chest in order to share the euphoria and play with the dog alongside the guide.

The extra should always begin the verbal reinforcement from inside the hideout, rectifying as much as possible the delay that there might be between the signalling bark of the dog and the opening of the chest. The reason why the guide does not verbally reinforce nor draw close to the dog until the extra has done so is for the dog to clearly identify the extra(s) as the goal-element, and thus dissociate the guide with this role and with that of possible means for getting reinforcement. This is the main reason why the Arcn method does not include the possibility of the guide taking on the role of extra, even though this is quite a widespread practice in the initial phase. Thus we solidly manage to avoid the risk that in the accident the dog improperly leaves the localisation point and returns to the guide occasionally. Additionally, we preserve the dogs invaluable potential for autonomy in the search process. The dog learns to bark at the person hidden under the surface thanks to its basic mechanism of associative learning. Exposed chest: 2nd step The release point is kept, but in this case the dog can make out the chest covered by a lid without the prior presence of the extra.

Concealed chest: 1st step

- The lid is partially covered with rubble. The instructor should control more or less covering when carrying out this next exercise based on the possible degree of inhibition observed in the dog before including the new concealed element, until reaching the point in which the dog signals confidently and fluently towards a lid that is totally covered in rubble.
- When the figure and guide reinforce the dog, they should bear in mind that it is crucial to convey to it the necessary degree of emotion, imbuing their movements, voice intonations and petting with the required excitement that will manage to intensely stimulate the dog.

Concealed chest: 2nd step

The signaling phase will end when the dog satisfactorily performs this exercise with another chest that is totally concealed and in a different location. Thus we should check whether the element rubble has acquired enough strength as a predictive stimulus for the dog. - The rubble used with the second chest should be different from that used with the first one, although obviously they will share similar basic features that will enable the dog to generalise. - One key factor to bear in mind when preparing these exercises is to always predict that the extra must be able to remove the lid covered with rubble without help. Thus, the weight and position of the elements lying on top of it must be controlled and the necessary trials at opening the chest should be held before the exercise. - With the actions with the concealed chest, all the extras must wear the appropriate protective helmet and any other safety gear required. The extra should partially move the lid to give immediate reinforcement. During the signalling phase, the following techniques should be applied whenever necessary:

- Gradual autonomy technique by the mannequin effect
- Technique of innocuous re-establishment by sound insertion
- Feasible localization technique by compensation negative factors

Simple Search (one buried person)

(Introductory rubble heap and rubble heap training site)

An introductory heap of rubble is that which does not exceed an approximate surface area of 50m2 and has a moderate height. The emotional activation factor must be applied in all the search exercises, as prior stimulus is key during the walk (several metres) before releasing the dog. The distance from the release point to the rubble heap should not be more than 25 m. For the first cover of the hideout, a fragment of board or something similar should be used, and rubble should be placed over it until achieving a totally hermetic closure that prevents the dog from catching any glimpse of the extra (stuntman) or from reaching him/her. In the burials, you should also try to avoid any possible distinctive features that might foster in the dog any type of visual discrimination in the future work areas and their consequent harmful association. When the extra removes the closure it might be very harmful for the dog to get any sort of negative impact from any element in the rubble and thus generate the consequent negative conditioning in the animal. This circumstance must be prevented and controlled by means of prior rehearsals, as mentioned above. The dogs should be in inside their corresponding transport cages, in the waiting area, without any possibility of seeing the working area. The extras (stuntmen) are still people who are familiar to the dog during the introductory rubble heap phase and the first search in the rubble heap training site phase in order to continue thereafter with extras who are total strangers. The dog should not be allowed to become familiar with the training site in order to foster the ability to adapt to new environments. The dog should feel attracted at first by the simple sight of the rubble heap, which after the concealed chest phase should have become a powerful predictive stimulus. Occasionally it can be seen that when certain dogs perceive the source of the human scent of the buried person they urinate or even defecate after the unavoidable relaxation of the sphincters prompted by the consequent emotional reaction. In some dogs there is an impairment of their barking ability which they cannot properly control and that harmfully hinders the fluency of the barking signal. The sense of frustration or anxiety during the search may at times be expressed with repeated chewing of blades of grass or other items. Rubble heap training site.

The dog that manages to properly localise and signal the stuntman buried in the introductory rubble heap will then go on to work in larger areas, called rubble heap training sites.
We should gradually push the dog to search further, beginning with a moderate distance from the release point to the buried person. Should the motivator be an object whose scent might

be detrimental to the dogs search ability, it should be replaced by a simple stick or another innocuous item (with no scent), while striving not to diminish the intensity of the reinforcement. We thus avoid the future risk of possible avoidance actions when signalling buried persons. The source of human scent coming out of the rubble now becomes a powerful predictive stimulus for the dog. - Just like other species, dogs have the capacity to respond in the same way to different stimuli that bear certain similarities. For this reason, it is feasible for them to generalise when faced with any rubble heap or different human scents. In the rubble heap training site, the distance from the release point to the location of the buried person should gradually be increased, as it is the dogs own motivational state that will drive it to carry out the olfactory search for human scent molecules that will guide it towards the source emerging from the rubble, emanating from the buried extra.

The instructor should determine

Possible suitability of the rubble area
Location of the hideout
Position of each dogs relase point

The dog should get used to searching for buried people by sniffing. To achieve this, we should gradually try to reduce the possibility of it using existing traces on the terrain to head towards the target, and these traces should not be associated with key localisation signals. Sniffing is the only reliable procedure for searching for buried people after a cave-in. The people moving around the rubble area during the set-up when digging out the hiding place and hiding the extra should adhere to a pre-set route for entering and leaving this area. The release point should always be on the opposite side of this route. Another resource regarded as valid is to riddle the terrain with multiple traces in a premeditated fashion. Likewise, I discovered that certain dogs even used the traces left by the dog that went before them as a resource to guide themselves to the buried person. This circumstance can easily be solved by a methodical control of the dogs turns at searching. Upon noticing that certain dogs presented symptoms of stress (lack of vigour, inability to concentrate, increase in salivation, etc.) in their a search behaviour without any apparent cause, I managed to detect that the origin lay in the previous capture of pheromones by the male that had been excreted by some female in heat in another place and time (aerially, in the urine, etc.). This state can last up to several weeks, during which the dog should be withdrawn from any activity that requires psychological effort. The hideout should not be used more than once by the same dog, nor should the rubble heap once the feasible burials have been done. Under no circumstances should the dog ever be upbraided in the rubble area, thus avoiding among other consequences the possibility that this area becomes a conditioning inhibiting stimulus for the dog, which might even slightly diminish its possible state of motivation or concentration.

I should point out that even though I am in favour of the dogs learning by certain direction orders (a relatively simple operation), I am steadfastly opposed to using these orders during everyday training, as it could harm the dogs initiative and autonomy to a greater or lesser degree, as it might harmfully identify the guide as a possible guiding resource during search operations and certain situations, thus visibly harming its required level of concentration. The following techniques are applicable in this simple search phase: Gradual autonomy by the mannequin effect -Techniques of Innocuous re-establishment by sound insertion. Feasible localization technique by compensation of negative factors. Support without request by restricted approximation.

Chained Search (two or more buried persons)

We should begin the chained search learning process with only two buried extras. The respective hideouts should be located in the rubble heap training site separated by an average distance of 50 metres. Once one of the two extras has been signalled by the dog, the chained search technique by mimicked dissuasion of the buried person should be applied, so that as soon as the extra who has been localised and signalled secondly is the one who reinforces the dog as described in the simple search. After reinforcing the dog and then withdrawing, the guide puts on the leash and takes the dog up to a middle point towards the second buried person, and releases the dog once again. In this way, we strive to ensure the dogs success in the second localisation and the consequent inclusion of this new work scheme in its memory and behavioural repertoire. The instructor should watch carefully in order to use the transceiver to warn the extra who should reinforce, as it will be impossible to fully predict which buried person the dog will capture and signal first. When it has been confirmed that the dog properly performs the chained search behaviour with two buried people, a third hideout and extra should be added, keeping the average distance of 50 metres from the other two. We should continue applying the same basic mechanism, mimicked dissuasion with the first two extras signalled and the reinforcement (especially pronounced) in the case of the third and last extra signalled. Following this pattern, several different search operations with variable numbers of buried persons (one, five, six, etc.) should be performed. The extra who gives the reinforcement should also vary, but always bearing in mind that the chained search comes to an end for each dog with the appearance of the main reinforcement (from the guide and extra). The dog gradually includes this new scheme of chained searches into its behavioural repertoire, developing the new expectation of the possible continuity of the search after a variable number of signalling acts, with the main reinforcement appearing in an unpredictable fashion. This type of circumstance actually becomes an added stimulus for the dog. The dog should gradually come to be released from the signal point itself. Before each search instruction, the dog will always be placed on the leash with the purpose of its gradually becoming used to restarting the search without ever having to await the guides order.

The following techniques will be applied in this chained search phase:

Gradual autonomy technique by the mannequin effect - Feasible localisation technique by compensation negative factors
Calibrated reinforcement technique by triple control

Chained search technique by mimicked dissuasion of the buried person

When the chained search behaviour is deemed to be consolidated in the dog, we should gradually subject it to different types of discriminatory trainings (olfactory, visual, etc.) and have it carry out searches with the presence of adverse factors (confinement, noise, etc.).

A moderate process of individualised intensification should always be applied. Once the initial training process has been completed, the dog will show an especially solid and effective level of autonomy, motivation and concentration in the searches.

From here on out, the following techniques should be applied constantly:

Gradual autonomy technique by the mannequin effect

Calibrated reinforcement technique by triple control

Chained search technique by mimicked dissuasion of the buried person.

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About the Author Jaime Parejo Garcia

Jaime Parejo is Canine Rescue Expert of the Firefighters of Seville, Spain. He is regarded as an internationally renowned expert in the speciality of canine catastrophe rescues. To date, he has been given numerous official awards, distinctions and congratulations both nationally and internationally from different governments and institutions (the Spanish Committee of the Mankind Programme and UNESCO's Biosphere, the UNESCO Centre in Melilla, the governments of Spain, China, etc.). Specific examples include the First Prize for Research granted by the Spanish Royal Canine Society in 1998, and the Sasakawa Certificate of Distinction from the United Nations in 2005, both entailing worldwide recognition of his transcendent international research and teaching efforts as well as the scientific advances of the Arcon Method in reducing the number of disaster victims. In both case, he was the first Spaniard to earn such prominent distinctions. Santo Tomas University in Colombia: award for "A Life Time of Support to Science and Investigation" and their recognition of Arcon Method as "Transcendent legacy to

Science and Human Wellfare", the Official Association of Veterinaries in Malaga, Spain, maximum official award: "The Gold V", etc. The Canine Units in Spain, El Salvador, Colombia, Ecuador, etc. using Arcon Method, are finding and saving people's lives survivors in earthquakes, land slide, and by finding mines and explosives... in general from the year 1999.

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