



TIEMS

The International Emergency Management Society



THE INTERNATIONAL EMERGENCY MANAGEMENT SOCIETY

Newsletter - ISSUE 25 - December 2015

ISSN 2033-1614



**TIEMS next Annual
Conference 2016
in San Diego, California, USA**

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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 and disaster management. 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.

**Alex Fullick
TIEMS Newsletter Editor**

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Message from TIEMS President

War and Conflict Consequences

These days we see the consequences of war and conflicts around the world, with a huge migration and refugee flow towards a hopefully better life in Europe. We also see terrorist and suicide bomber's attacks in cities throughout the world. Although Paris has gotten recent attention, we should not forget the attacks in other countries, such as Lebanon, Nigeria, Tunisia, Egypt, and Iraq.

I would like to express my deepest sympathy for the people of the countries struck by terrorism, and especially for the families whose loved ones were killed or wounded in the meaningless terrorist attacks we have seen lately. The number of victims is shocking and heartbreaking, and thinking of them makes me angry and speechless and brings tears to my eyes.

Let the figure below be a symbol of my grief for these attacks worldwide.



Our world politicians have a responsibility to find long-term political solutions to reduce these consequences. Bombing ISIL is not a sufficient solution. Obvious long-term solutions are, just to mention a few:

- Increased efforts to reduce poverty
- Education for all
- Guaranteed jobs for young people
- Close follow up of leaders who brainwash young people to sacrifice their life in a meaningless suicide action
- Etc.

But first of all, we must find political solutions to stop wars and conflicts before they develop into what we see is happening in Syria today!



Oslo 7th December 2015
K. Harald Drager
TIEMS President

Our experience in emergency and disaster management tells us that proper communication is a must, but communication failures often lead to grave consequences. This is also the situation with world political leaders today. They need to communicate whatever pro or cons opinions they have, openly discuss their differences, and work together to stop this senseless conflict and loss of life.

TIEMS 2015 Activities

TIEMS continues to develop worldwide, and in this newsletter, which is the largest ever, we have structured the content into the following sections :

- News from TIEMS
- International R&D Activities
- Industrial News
- Conferences and Workshops

- Pandemics and Epidemics
- Miscellaneous

In addition, because we received many contributions this time, we decided to collect all scientific articles in a special issue of TIEMS Newsletter, which we have named TIEMS Newsletter Scientific Articles Issue no 1. Depending on the amount of articles we receive in the future for publication in the newsletter, we plan to issue this edition at the same time as the regular newsletter, or when the number of articles are sufficient to issue a substantive issue.

The different sections of this newsletter are addressed briefly in the following.

News from TIEMS

I will first of all like to thank Alex Fullick, for serving as TIEMS Editor for the newsletter for 6 years. He needs a break for his own activities, but he is not lost for TIEMS, and I trust he will continue his support of TIEMS also in the future. The newsletter has had a huge growth in articles and distributions with him as editor. Likewise I like to welcome onboard Joseph Pollack as the new Editor, and I trust he will set his own footprint on the newsletter. Both of them are presented below.

Further news from TIEMS is the announcement and call for papers for TIEMS 2016 Annual Conference in San Diego where the focus is emergency management challenges for big cities.

Furthermore, the new TIEMS directors and officers are presented as well as the TIEMS Awards granted at the annual conference in Rome. The new volunteers are very welcome onboard TIEMS to develop the organization further.

The Nepal earthquake was the main topic at TIEMS annual conference in Rome, and we have made up a White Paper addressing the issues we think are the most important to support the

Nepal Government in its rebuilding and making Nepal more resilient.

Finally we are presenting TIEMS GENERATE project (Global Education Network for Emergency Resilience and Training Excellence), for which we invite partners and supporters.

International R&D Activities

Important international R&D projects are presented from different countries in Europe and Taiwan. R&D activities are important for addressing the different challenges and gaps in emergency management and disaster response, and TIEMS likes to contribute with disseminating the news and results from these projects.

Industrial News

We are presenting one of TIEMS sponsors at TIEMS 2015 Annual Conference in Rome, ETEA Sicurezza, and their activities and products.

Conferences and Workshops

Reports from TIEMS Chapter activities with conferences in China and Korea are presented as well as announcements of conferences and workshops TIEMS supports and participates in.

Pandemics and Epidemics

TIEMS was invited by EU to take part in the EU workshop on lessons learned from the Ebola crisis. The workshops took place in Luxembourg, and the report and conclusions of the workshops is enclosed in the newsletter. The conclusions will form the basis for EU's statements on Public Health.

Progress report from the ASSET project where TIEMS is a partner as well as the ECOM project are also presented.

Miscellaneous

A visit report from Bhopal disaster (1984) site in India is presented as well as a reference to the scientific articles in the Scientific Articles part of TIEMS Newsletter.

Editor's Message



Hello once again dear readers!

Welcome to the Fall 2015 edition of the TIEMS Newsletter...our largest edition ever! We have a few articles from the TIEMS Annual Conference in Rome and many many other announcements, updates and articles from around the globe. We're also announcing next year's TIEMS annual conference, which will be in San Diego, California (Sept 13-15, 2016).

On a different note, this is also the last edition where I'll be editor. After nearly five years at the helm it's time for me to hand the reigns to another. I have many commitments and projects to address – both personal and professional – that I need to dedicate myself to and unfortunately I won't have time for the TIEMS newsletter anymore.

As TIEMS is a global organization, I always wanted the newsletter to have a global feel with each submission sounding like it came from a global source. I never wanted articles or submissions to sound like me, otherwise the newsletter isn't really a global voice – it's mine, and I wanted it to be your voice. I hope I was able to convey that.

It was recently pointed out to me that when I started back in 2009 - after having breakfast with K. Harald Drager, TIEMS President - we had a small distribution of a few thousand and had a tough time pulling together a few articles. Five years later the newsletter is distributed to approximately 100,000 readers and is chock full of announcements and articles. I'm very proud of that and can only thank each and every person involved; from the TIEMS Board of Directors to everyone that read and/or contributed to the newsletter. We couldn't have achieved that success without you.

So with this edition I hand off the newsletter to our new TIEMS Editor, Mr. Joseph Pollack. Joseph has been a long-time reader of the newsletter and is sure to take it to a new and greater level. All the best Joseph!

I still plan to be part of TIEMS and I'll be attending the 2016 TIEMS Annual Conference in San Diego (Sept 13-15, 2016). Maybe I'll see you there...

And with that, I sincerely thank you and say good bye.

Regards,

Alex Fullick, MBCI, CBCP, CBRA, v3ITIL
(Former) Editor, TIEMS Advisory Board
Email: alex@stone-road.com



Introducing the New TIEMS Editor: Joseph Pollack



I'm very happy to take over from M. Alex Fullick as the newsletter editor this year. He's done a tremendous job over the last thirteen years, culminating in this month's newsletter : the largest newsletter yet! What's particularly interesting with this issue is that it's made up of so many diverse member contributions from so many different parts of the world. What really brings this together as a coherent assemblage is the fact that each contribution gives insight about local interpretations for the professionalization of this field.

I was asked to offer a few words about the direction I would like to take. Put simply : more of the same! I would like to support the TIEMS community to share their experience with regards to civilian life after a career of service; and their insight with regards to policy and technology developments in the fields of health and safety and civil protection. So many TIEMS members successfully re-oriented themselves in the private sector or in government. I would like to help you inspire and support prospective members and colleagues with your stories!

Other, distinguished, TIEMS members continue to drive civil protection forward by contributing to the professionalization of the sector academically or technologically. I'm really looking forward to gathering insights with regards to the promotion of specialized (CBRNE) training, institutional capacity building in low-resource environments, civilian and citizen engagement, and policing and rule of law promotion from all over the world. 90% of all human activity comes from the private sector : how do you contribute to its safeguarding ? I'll be on the lookout for member contributions in the fields of business continuity and high-security environment design.

Personally, I'm particularly interested in the protection and inclusion of indigenous populations, inter-agency training exercises, statistical and computing capacity building, GIS applications in civil protection, and future crimes. I have a BA in War Studies from Hull University, an LLM from Hamburg University, a MSc in Law and Development Economics from the Indira Gandhi Institute for Development Research and a Research Masters in Econometrics from the Sorbonne. Recently, I have contributed to research projects in advanced training systems, Emergency Operations Center design, and Public Health Policy as an independent consultant.

I can be reached for inquiries and potential contributions at the secretariat.

Warm Regards,

-Joseph

TIEMS SECTION

**The International Emergency Management Society
2016 Annual Conference
Innovation and Urban Planning for Emergency Resilience in
Large Cities
13-15 September 2016, San Diego, California, USA**



In an increasingly interdependent world, coordination between local, state, national, and international agencies and the ability to leverage innovative technology have become critical to the success of today's emergency management strategies. This conference will explore best practices and emerging technologies to facilitate coordination of resources, as well as urban planning strategies to build resilient communities.

Topics to include:

- Cross-Border and Inter-Agency Coordination
- Cyber Security
- Coastal Concerns
- Urban Planning and Crime Prevention Through Environmental Design
- New and Applied Technologies

Presentations and full papers are sought on these topics. Please submit proposals to Tom Robertson, tvrobertson@yahoo.com.

Conference Venue

Join us in America's Finest City - San Diego, California at the city's new Central Library @ Joan A Irwin Jacobs Common. At nearly 500,000 square feet and standing nine-stories high, the San Diego Central Library boasts the latest technology, an outdoor garden and courtyard café, an art gallery, and views of the San Diego Bay, Petco Park, and the San Ysidro Border Crossing—the busiest land-border crossing in the world.

San Diego is also home to Balboa Park, SeaWorld® San Diego, Legoland® California, historic Old Town San Diego, the Gaslamp District, and beautiful beaches.

Travel

Lindbergh Field at the San Diego International Airport (SAN) is 5.3 miles from the conference facility. Transportation from the airport to the conference can be obtained the public transportation, taxi, or Uber.

Non-US persons may need to apply for a visa to attend the conference. If you need a visa, you will need to obtain one from the US Embassy Consular Section in your country. How to obtain a visa is described at obtaining a visa. If you need a visa, we recommend you start the process right away, as it can take several months.

If your country is listed as part of the Visa Waiver Program (VWP), you may not need a visa. (You will, however, require a machine-readable passport.) A list of countries participating in the VWP can be found here: [Visa Waiver Program](#).

Conference Registration

Conference registration includes:

- One-year TIEMS membership (not included in single day passes)
- Conference program and online access to abstracts, presentation materials, and full papers
- Attendance at all plenary and subject sessions
- First Night Reception (\$25 charge for single day pass holders and non-registered guests)
- Coffee breaks and lunch.

Time of Payment	Conference fee Regular		Conference fee Student	
	Non TIEMS Members	TIEMS Members	Non TIEMS Members	TIEMS Members
Early Bird Registration Before 3/12/2016	400US\$	300US\$	200US\$	170US\$
Advanced Registration 3/13/2016—7/12/2016	450US\$	350US\$	250US\$	220US\$
Pre-Event Registration 7/13/2016—9/12/2016	500US\$	400US\$	250US\$	220US\$
At Event After 9/13/2016	550US\$	450US\$	350US\$	330US\$
Single Day	220US\$	180US\$	140US\$	120US\$

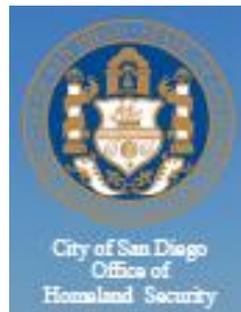
Submission of Abstract:

<https://easychair.org/account/signin.cgi?key=31317064.GlztZkQOqjTyEE7;timeout=1>

Registration and Payment:

http://tiems.info/component/com_eventbooking/Itemid,115/category_id,5/task/view_category/

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Interview with Dr. Jae Kwon Kim

-President of TIEMS Korea Chapter-



For this edition, we're lucky to have two interviews with TIEMS Board Members. This time we're reaching out to Dr. JaeKwon Kim, who is the President of the TIMES Korea Chapter.

Dr. Kim agreed to speak with us and provide some insight, as to how he got involved with TIEMS and his thoughts and experiences with Disaster and Emergency Management.

1) How did you become aware of TIEMS and what made you decide to get involved with the organization?

I became aware of TIEMS in 2007, when I first decided to form KSDS(Korean Society of Disaster & Security), and I realized that TIEMS is an organization for scholars, who study about emergency response management, educational training, and emergency manuals. Thus, I first participated in TIEMS as a vice president of Korean Society of Disaster & Security, as KSDS was first organized. Right now, I am serving as Chairman of KSDS, and I naturally got involved in TIEMS we were involved various activities related to disaster resilience.

2) How did you become involved with Disaster / Emergency Management in Korea?

I first began working in the field as a practitioner, while I was participating in huge projects with Korea Construction Management Corporation as an engineer. As a practitioner, I got involved in projects inside and outside of Korea, and participated in disaster and emergency response in Korea. Currently, I am working as a CEO of a railroad corporate, and also served as a CEO in construction corporate that I am well aware of disaster prevention and emergency response. Naturally, I participated in disaster prevention activities as a consultant, panel, and researcher. As the head of KSDS, I am deeply involved in emergency response manual, research, and policy settings in Korea.

3) What do you believe has been your greatest success in the Disaster / Emergency Management field? What are you most proud of?

As an engineer, I participated in huge projects in many different nations such as Saudi Arabia,

Arab region, Japan, Singapore, and Asian region. Especially, in the field of construction safety field, I have many experiences working as a control tower. Through various experiences from various work sites, not a single casualty occurred as I was working as a control tower, and I am really proud of it. Today, I am participating in national disaster prevention for policy setting, and research as a leader, and I earned this position through my passion and devotion in my field to make everyone safe from disaster and accidents.

4) What are some of the challenges you face in Korea with Disaster/Emergency Management?

Korea is the only one single country that gained its reputation from the world's most poor country to one of the richest countries. In other words, even after World War II was over, Korean peninsula was in the state of war causing thousands of casualties. Korea stood up from tragedy, and resisted, exporting goods, constructing buildings, and it became one of the advanced country in a short time that no other country made possible. Rapid growth brought side effects that many safety accidents and disasters occurred. Personally, emergency response, and disaster prevention for natural hazards are advanced, but response toward social disaster is not quite advanced yet. Especially, social disasters, such as Sewol Ferry accident occurs once in a while, bringing tragedy and sadness over Korean peninsula. My challenge, and goal as a chairman of KSDS, is to educate, train, and research by raising awareness, and explain necessity for disaster preparedness to make a perfect disaster response system. I believe this is a goal, and challenge that is worthwhile to overcome as a chairman of KSDS, and president of Korea chapter of TIEMS.

5) Is there anything about the Disaster / Emergency Management industry you would like to see changed or receive more focus?

It can be well explained by the keynote speech, I delivered in the last Rome TIEMS Conference. The main content of the speech was, "In modern society, risk factors have become complex and bigger resulting frequent natural disasters around world". Modern society became 'risk society' such that climate change, ecological risk, risk of war, terrorism, nuclear threats, and medical malpractice health threats, communication failures, accidents, energy threat, train derailment, subway fire, earthquake, tsunami, nuclear power plant radiation spacecraft explosion, collapse of buildings, bridges, and sinking ferries are good examples of negative products that produce large economic losses and pains and tragedies, destructions, and disasters caused by human activities. There are too many of these risk management factors. It is important to do a comprehensive management and cost allocation." Disaster, emergency response management industry is too wide to cover, and some parts need change and innovation, and thus practitioners like us, need to pay more attentions to "terrorism, nuclear threats, medical malpractice health threat"

6) What advice do you have for new DR/ERM professionals just entering the field?

New expert, who just has joined into this field of study, will know how precious asset human life would be. Like I said before, industries related to emergency response are expanding. There are many opportunities that one can grasp, so if this new expert keeps up with his work, I am sure he will be one successful expert in this field in the future.

7) Can you tell us something about yourself that people might not know (Hobbies etc.)?

I am married, and I have one daughter, and grandson. I love strolling and hiking, mostly for leisure, and I also likes golf, and go, which is also known as baduk in Korea that it is an Asian style of chess. I prefer activities that I could enjoy with my fellows, while keeping myself active and healthy. Sometimes, I travel around to buy myself sometime to refresh his mind. In addition, I have deep interest in scientific fictions and space engineering, which helps me to explore the world of space and future life of human species. To be more specific, I am especially interested in the moon and mars that I probably spend more time than experts in the field to read books about these two and study about planets and satellites in relation to residential aspects and living environment.

(Editor : Thank you for your time, Dr. Kim. We appreciate your contribution!)

Presentation of the Chair of TIEMS International Program Committee



Sandro Bologna is the Chair of TIEMS International Program Committee (IPC).

Sandro Bologna, graduated in physics from Rome University, has 35+ years experience at ENEA (The Italian National Agency for New Technologies, Energy and Sustainable Economic Development) and abroad, where he has held positions as Researcher, Head of Research Units, and Head of Research Projects at national and international levels.

While working at ENEA his main research topics have been on system safety and reliability, decision support systems, risk analysis and risk management. Recent main research activities deal with Critical Infrastructure Protection and Resilience, with a special emphasis to vulnerability and interdependencies modeling, simulation and analysis.

Former President of the Italian Association of Critical Infrastructure Experts, at the present he is independent researcher and freelance expert for the participation to National and International Research Projects in the field of Cyber security and Critical Infrastructure Protection and Resilience.

Join TIEMS International Program Committee

-INVITATION-

Working on Emergency Management requires to have a clear picture of the evolving risks landscape. For that purpose a good source to start with is the annual World Economic Forum (WEF) Report on Global Risks. It is also clear from the recent dramatic events in Paris that global risks are changing through the years, as new issues emerge each year. TIEMS should demonstrate ability to follow these evolving risk landscapes and promote emergency management activities.

WEF Report on Global Risks 2015, classify risks into five categories: economic, environmental, geopolitical, societal, and technological in nature. All are, unfortunately, are linked interdependently. The world seems insufficiently prepared for an increasingly complex risk environment at all levels; local, regional, national and international. Risks transcend borders and sectors.

The Terms of Reference for the Chair and Members of the TIEMS International Program Committee asks potential members to *“Contribute to maintain and further improve the quality of TIEMS worldwide events with proposed topics to be covered in the events and propose keynote speakers and experts to be contacted for participation in the events”*. That requirement, combined with the aforementioned evolving risk landscape makes the duty of the TIEMS International Program Committee (IPC) particularly challenging.

Any TIEMS Member that may contribute to, and address these challenges, are warmly invited to become a Member of the TIEMS International Program Committee by sending an email to either the TIEMS President or to the TIEMS IPC Chair (or both).

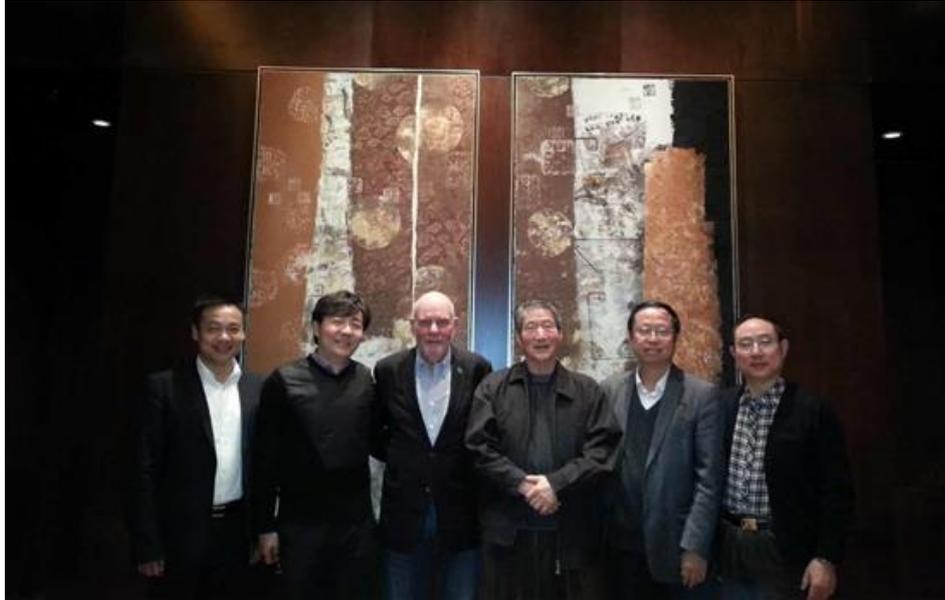
Warm Regards,

Sandro Bologna

Chair of the TIEMS IPC

s.bologna@infrastrutturecritiche.it

TIEMS President Meeting with TIEMS China Chapter



On Nov. 21, 2015 , TIEMS China Chapter's Chairman Shan Chunchang, Vice Chairman Qu Guosheng, Zhang Ji, General Secretary Ning Chunlin, and Depute Secretary Yao Xiang had a happy dinner with TIEMS President Harald Drager in Beijing. During the dinner, President Drager gave several wishes to China chapter. First, he wishes the initiative of building a global learning network will expand, and China chapter will take more important role. Second, he wishes the collaboration between the China chapter and TIEMS global chapters will be strengthened. Last but not the least, he wishes everyone good health. The China chapter updated with President Drager its recent progresses, and invited him to 2016 TIEMS China Chapter Annual Conference in Zhuhai. President Drager felt excited about China chapter's achievement, and happily accepted the invitation. He also invited China chapter to 2016 TIEMS Annual Conference in San Diego.

On this sweet night a week ahead of Thanksgiving Day, China Chapter would especially thank President Drager for his great contribution for founding this wonderful platform. We believe with all the members' devotion and efforts, TIEMS will be more and more successful.

TIEMS 2015 Paper Award Winners

TIEMS would like to take the opportunity to congratulate the winners of the Paper Awards bestowed during the recent annual conference in Rome, Italy.

TIEMS 2015 Best Student Paper Award

EMERGENCY MANAGEMENT WITH INTERDEPENDENCY MODELING IN THE URANIUM PROJECT

S.Panzieri, C.Palazzo and D.Masucci

TIEMS 2015 Best Academic Paper Award

INTER-ORGANISATIONAL LESSONS LEARNED: PERSPECTIVES AND CHALLENGES

Dennis Andersson and Pär Eriksson

TIEMS 2015 Best Practitioner Paper Award

INTEGRATED OPEN SERVICE PLATFORM FOR ENHANCED RISK AND EMERGENCY MANAGEMENT: THE PHAROS SOLUTION

Javier Mulero Chaves, Ulrich Raape, Miguel Mendes, Thomas Ladoire, Spyros Pantazis, Holger Podolski, Oriol Vilalta, Wim van Setten and Roberta Campo

TIEMS President's Outstanding Achievement Award - 2014

Thomas V. Robertson



GENERATE - A TIEMS Research & Development Project Proposal

Global Educational Network for Emergency Resilience and Training Excellence (GENERATE)

Thomas V. Robertson Ph.D.
*TIEMS Regional Director for
 North America*

K. Harald Drager
TIEMS President

Supported by:



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EXECUTIVE SUMMARY

The world is increasingly vulnerable to emergencies, because of climate change, population growth and aging, urbanization, and other factors. Although the immediate effects of disasters and emergencies are often local, this is an international problem. The global economy and our transportation, energy, and information infrastructures connect us and make us interdependent, so the impacts of local disasters ripple far and wide. Disasters and emergencies also become international because the global community recognizes a responsibility to bring its resources to the aid of stricken localities.

The foundation of emergency resilience is knowledge, education, and training, which is available throughout the world at colleges, universities, online resources, international educational initiatives, training facilities and others. In spite of the abundance of these educational and training resources, they are not available to enough individuals who could benefit from them, especially in developing nations. And even the developed world would benefit from better access to the knowledge and experience of the global community.

The Global Educational Network for Emergency Resilience And Training Excellence (GENERATE) program is an initiative by The International Emergency Management Society (TIEMS), to create a network of participating organizations and an online resource to improve access to the world's collective knowledge and experience in emergency management. To meet this goal, GENERATE will

- 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 to vulnerable societies
- Provide a platform to share critical lessons learned from disasters and emergencies

GENERATE will create a community of emergency management educators, practitioners, and students, who will share knowledge and work together to improve capabilities worldwide. To support this community, GENERATE will develop a software platform which will include:

- An eLearning and Certification platform that will foster, across the international community, a shared, common understanding of emergency management elements, standards, and terminology
- A directory of educational resources, described within a common framework, including live and online degree programs, courses, workshops, and knowledge bases
- An online portal that will make emergency management educational resources, from established educational institutions and initiatives, broadly available to students worldwide. The core of these educational resources will be developed and provided by a network of GENERATE Centres of Excellence
- An online Communities of Practice network to allow sharing of lessons learned, experiences, and specialized knowledge throughout the global community
- TIEMS Mobile Application Module – this is a mobile application module reachable over a smart phone

The GENERATE concept is summarized in FIG 1 below:

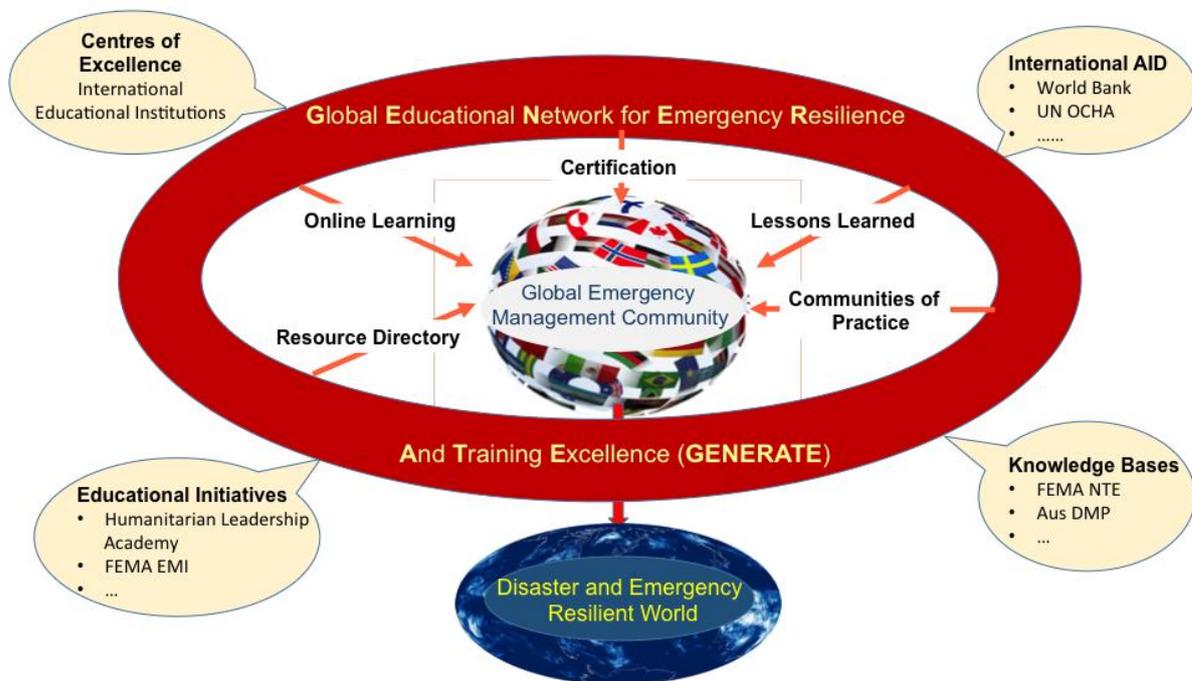


FIG. 1: Global Educational Network for Emergency Resilience and Training Excellence

GENERATE will be developed through the cooperation of multiple partners, and invitations to participate will be sent to leading universities and educational institutions around the world including global institutions such as:

- World Bank
- US Federal Emergency Management Institute
- Humanitarian Leadership Academy
- UN OCHA

- EU Civil Protection Unit
- International Civil Defence Organization

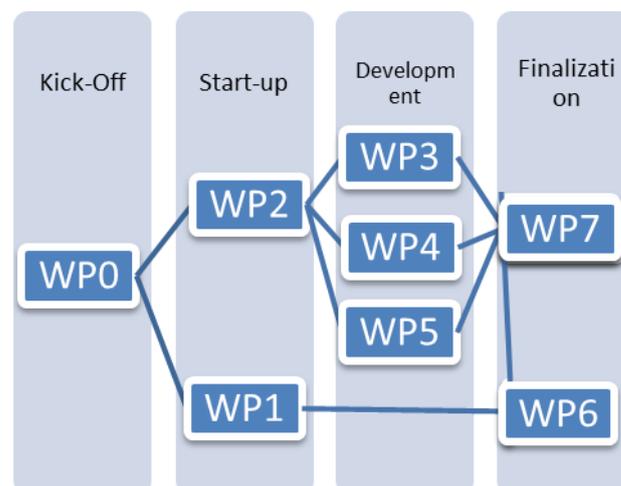
The International Emergency Management Society (TIEMS) will lead the project, drawing on 23 years' experience developing excellence in emergency management and disaster response, through worldwide conferences and workshops, education curricula, training workshops, and establishing a network of experts in international emergency management education. TIEMS will lead the identification of emergency and disaster management educational resources throughout the world, and work with the other partners to establish an international framework for emergency and disaster management elements, standards, and terminology.

We are seeking a few main university partners whom are asked to develop the first GENERATE Centres of Excellence, contributing content and prototyping and testing online infrastructure. We are also seeking partners from regions such as the Middle East, North Africa, Asia and others to insure that we develop GENERATE capabilities that are particularly useful to vulnerable regions.

The initial year-long phase of the GENERATE initiative is expected to begin in late 2015/early 2016 with a workshop involving key participants. During the first year, an initial prototype will be developed and tested. A concluding workshop will be used to present results, lessons learned, and plans for scaling up GENERATE in subsequent phases.

The proposed GENERATE project would promote resilience to emergencies and disasters, by making the world's collective emergency management knowledge and experience widely available. This improved access will particularly benefit vulnerable nations with limited access to educational institutions, and it will improve communication and collaboration across all nations. By supporting real-time updates to the global emergency management knowledge base and standardizing qualifications throughout the world, GENERATE will lay the groundwork for the kind of international collaboration demanded by our increasingly interconnected world.

The work of the proposed project will be organized into 7 work packages, as summarized below:



WP0 = Contract signing, preparatory work and workshop = PREPARATIONS & WORKSHOP

WP1 = Project Management = MANAGEMENT & CONTROL

WP2 = Final system structure and detailed design = STRUCTURE & DESIGN

WP3 = Survey universities and establish GENERATE network = UNIVERSITY NETWORK

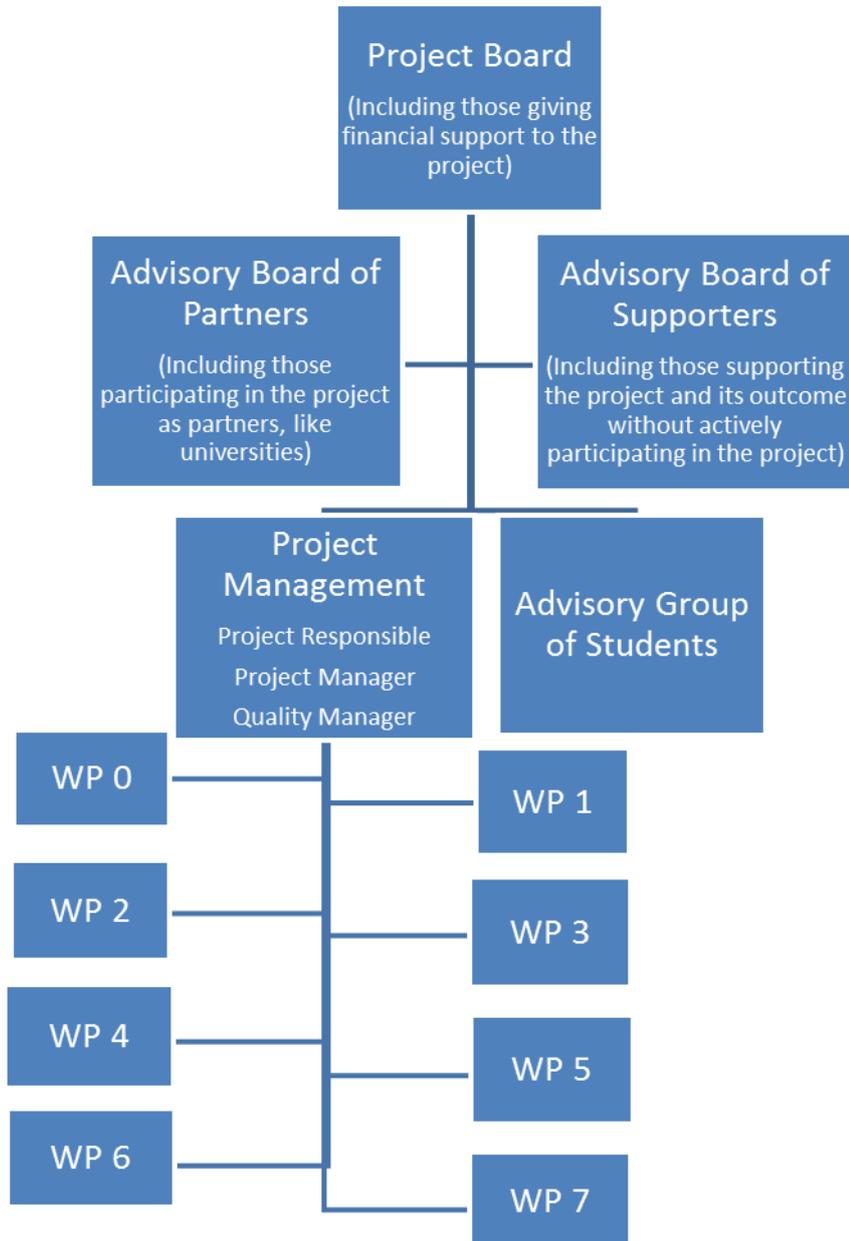
WP4 = Develop GENERATE Software Module = GENERATE SYSTEM

WP5 = Establish Student group for QIEDM certification testing = STUDENT TESTS

WP6 = Establish GENERATE Administrative System = GENERATE ADMINISTRATION

WP7 = Project documentation and final workshop = DOCUMENTATION & WORKSHOP

The GENERATE project will be organized as shown in the diagram below. The project management team, led by TIEMS, will work under the guidance of the Project Board and different Advisory Boards, which will assure alignment with sponsor and partner priorities.



Support Letter for TIEMS GENERATE R&D Project Proposal

<Institutional or Personal Logo>

To: The International Emergency Management Society - TIEMS

Attn: TIEMS President, K. Harald Drager

E-mail: khdrager@online.no

The GENERATE R&D project is a global education network initiative, which **<institution or person>** would like to support, as indicated below:

- **< >** intends to ***Give Financial Support*** and actively participate in the project, accordingly becoming a member of the Project Board
- **< >** intends to ***Become a Project Partner***, working to become a TIEMS International Education Center of Excellence and contribute courses to the e-learning platform, accordingly becoming a member of the Advisory Board of Partners
- **< >** intends to ***Be a Project Observer*** and support the project by actively evaluating project results and giving feed-back to project management, accordingly becoming a member of the Advisory Board of Supporters
- **< >** intends to ***Become a Student Evaluator*** of the system by actively evaluating the certification system and giving feed-back to project management, and working to become certified according to the TIEMS QIEM Certification, accordingly becoming a member of the Advisory Board of Students.

<Institution or person> has read the GENERATE R&D project proposal, and is ready to sign an agreement with TIEMS specifying obligations and benefits associated with participation in the GENERATE R&D project, as soon as the project is ready to start its activity.

<Institution or person> accepts that their name will be mentioned as a supporter of the project in GENERATE project description material.

Yours Sincerely

<Responsible Signature>

<Institution or person>

A White Paper on 2015 Nepal Earthquake

Way Forward and Need of International Assistance

Prepared by: The International Emergency Management Society

1. Objective of the White Paper

The main objective of this white paper is to raise awareness of the need for bi-lateral and/or multi-lateral agencies to help Nepal recover from the 2015 earthquake and to put Nepal on a path toward enhanced preparedness for future events. The International Emergency Management Society (TIEMS) requests that members of the international aid and emergency management communities join them to help Nepal recover and better prepare for future earthquakes.

2. Background

Nepal's proximity to earthquake hazards is mainly due to her young and fragile geology. Haphazard and unplanned settlements and poor construction practice are the contributing reasons that have made her highly vulnerable to the loss of life and property as a result of earthquakes. Earthquakes threaten the entire country all the time. Nepal remains poised for another mega disaster based upon scientific research. This research reflects that there is a high probability of additional earthquakes at anytime and anywhere in the country. Nepal has encountered many earthquakes throughout history; but it has the record for the greatest loss of life since the 12th century. Since then Nepal has encountered 16 major earthquakes, including the recent devastating Gorkha Earthquake of 25 April 2015. This very recent striking example of earthquake vulnerability of the country creates the impetus for this paper and its attendant requests. The earthquake left a trail of miseries that the effected population will continue to battle for years. This is, in fact, a wakeup call for policy-makers, development experts, civil society, disaster management professionals, healthcare workers and the general public that had not considered the existing unplanned development, uneven resource distribution and the confounding complexities of managing a response to a widespread event.

3. Brief Description of the Devastating Nepal Earthquake of 25 April

A 7.6 magnitude earthquake struck Nepal on 25 April 2015 (11:56am local time). It occurred in a geological collision zone, where the Indian tectonic plate pushes north into the Eurasian plate, moving the ground an average of 2cm a year. The epicenter was in Barpak Village of Gorkha district which is 81 km northwest from Kathmandu (the capital city). The devastating earthquake killed 8891, with 198 persons missing. Another 22,303 people were seriously injured, and millions were left homeless. More than six hundred thousand households were fully damaged and around three hundred thousand damaged partially. The earthquake severely affected 14 districts (Gorkha, Dhading, Rasuwa, Nuwakot, Kathmandu, Lalitpur Bhaktapur, Kavrepalanchowk, Sindhupalchowk, Dolakha, Sindhuli, Makawanpur, Ramechhap and Okhaldhunga). Another 31 districts were less severely affected but nevertheless had to deal with damage and disruption.

According to the Post Disaster Need Assessment (PDNA) report, total damage and loss is seven billion dollars. This earthquake was the largest to hit Nepal since the Nepal–Bihar earthquake 1934. As with all major earthquakes, casualties were caused mainly due to the collapse of infrastructures. This earthquake effected the entire country of Nepal and also effected some parts of India, Bangladesh and the Tibet Autonomous Region of China. Tremors were also felt in Bhutan and Pakistan.

Please see Table 3 below for detailed data.

Table 3

Losses Due to the Earthquake

Particulars	Nos.
Persons dead	8,891
Missing	198
Injured	22,302
Affected Families	8,86,456
Displaced Families	6,51,675
Houses Damaged (Fully)	6,04,930
Houses Damaged (Partially)	2,88,856

Source: Ministry of Home Affairs, the Government of Nepal

Mostly, old, non-engineered, adobe and masonry buildings collapsed and/or were severely damaged by the earthquake. In addition, some engineered buildings were also damaged or collapsed due to poor workmanship and quality of construction materials.

The Nepal Earthquake 2015 will have a long-term effect on Nepal's economy and development efforts lasting several years. The agriculture, industry, tourism, healthcare and service sectors have been badly affected. This is a major set-back and it may take many years to revive.

4. Challenges and Gaps

It is still early to assess the total impact of the 2015 Nepal Earthquake. There were psychosocial consequences of that devastating earthquake disaster that will have to be addressed over time. Experience has shown us that displaced persons recover unevenly as jobs, housing, schools and social organizations must be rebuilt. The nightmare and traumatic situation caused by the disaster upon many people, particularly among children and adolescents, are still there and may remain for a prolonged time. ***On the other hand, there are several issues in the short, medium and long term recovery process that need to be addressed in the aftermath of the disaster. There will also be several future issues, which need to be addresses at different stages of the recovery process. These are: coordination; information; collaboration; volunteer management; temporary shelter; relocation versus In-situ reconstruction; and people's resilience.***

5. Lessons Learnt

The biggest lesson Nepal learnt from this earthquake is that the threat of earthquakes will never end while Nepal is in a seismically very active zone. The best way to be safe from earthquake hazards is to build earthquake resistant infrastructures. There should be no COMPROMISE in building earthquake resistant infrastructures. Hence, this is high time to Build Back Better (BBB).

Moreover, based upon our recent experiences we know that a plan must be developed to manage the anticipated needs emanating from this type of catastrophic event. Those plans must address Nepal's hazards, vulnerability and response capabilities. The planning process must not be limited to "disaster professionals" but must include representatives from the whole of civil society. Building and constructions companies must be included. So too must banking and financial experts, since disasters are economic events. There must be a plan to fund recovery from a variety of sources. Health care professionals must be

encouraged to develop situational awareness and surge capacity management tools, recognizing that earthquakes produce both short term trauma injuries and long term psychosocial injuries in numbers which can easily overwhelm Nepal's resources. Capabilities must be put in place to manage volunteers (internal and external) in a way that effectively utilizes their abilities. Too often poorly trained or unknown volunteers create more pressure on local resources, even if they are well intended. Finally throughout pre-, during and post-event times, good risk communication channels must be created. You can have building codes, but if they are subject to vague enforcement, they are of little good. Transparency, communication, trust and integrity are all hallmarks of a nation well prepared and ready to build back better and anticipate the next event.

6. Initiatives Taken by TIEMS for Nepal Recovery

The International Emergency Management Society (TIEMS) is a non-profit international NGO. TIEMS is a global forum for education, training, certification and policy, in emergency and disaster management. TIEMS is dedicated to developing and bringing the benefits of modern emergency management tools, techniques and good practices to society for a safer world. TIEMS provides a platform for all stakeholders within the global emergency and disaster management community to meet, network and to learn new technical and operational methodologies. TIEMS also aims to exchange experience on good practices. This will help influence policy makers worldwide to improve global cooperation and to establish global standards within emergency and disaster management.

TIEMS attempted to draw the attention of international bi-lateral and multilateral agencies for their humanitarian help to the victims of the Nepal Earthquake through presentations and workshops at two consecutive Conferences. The first one was held in Portland, U.S.A. from 23 -25 June 2015 at Portland State University. A presentation at this conference mainly focused on the causes, consequences and future steps to be taken after the Nepal Earthquake concluding that the human and material damage in Nepal by the earthquake was enormous. As a consequence, international bi-lateral and multi-lateral assistance is highly necessary for the country to recover from the socio-economic impacts of the earthquake.

Likewise, TIEMS drew the attention of the international communities through its 19th Annual Conference which took place in Rome, Italy from 30 September to 2 October 2015. A comprehensive presentation and panel discussion on Nepal earthquake was a main thrust of this conference. The presentation urged international assistance for the early recovery of the destruction caused by the earthquake in Nepal and the panellists discussed the impacts and future steps to be taken to recover from such a devastating earthquake.

7. Way Forward

Nepal faces an enormous challenge from major disasters like the devastating earthquake of 25 April 2015. Living not only with earthquakes, but also with many other disasters is the destiny of Nepalese people. ***Yet, the Nepalese and their neighbours and friends all over the globe, have to reconcile themselves to the fact that tens of kilometres beneath where they live, the Indian and Eurasian plates will continue their tussle again and again. In that journey, they must build on the fundamental strengths they possess—social capital and community resilience.*** As the Nepalese move forward, they must allow competing visions, strategies, institutional cultures, resources, and perspectives to be expressed and articulated as democratic deliberation. The fact is that tremendous challenges lie ahead for the government, semi-government, and private organizations to collectively work towards addressing the urgent needs of the nation and its people who have been severely affected by this natural calamity. To cope with these challenges, international assistance, cooperation and collaboration is essential for Nepal.

Therefore, to rebuild Nepal, the government of Nepal is in need of experts inside and outside the country to engage in interdisciplinary collaboration where non-governmental organizations, the private sector, experts, intellectuals and the media can contribute in the rebuilding collaboratively and effectively.

8. Final Note

TIEMS, being a reputed international NGO, and having its worldwide network of experts – would like to help the Government of Nepal recover from the woes and sorrows of the earthquake. TIEMS can raise awareness through its conferences and publications, however to go further we seek the collaboration and support of bi-lateral and multi-lateral agencies. We believe such a partnership would allow the special insights provided by the community of TIEMS experts to help the bi-lateral and multi-lateral agencies work with the government of Nepal to effectively apply and coordinate their resources to the benefit of Nepal's earthquake recovery and preparation.

Rome, 2nd October 2015

*On behalf of
The International Emergency Management Society*



*K. Harald Drager
TIEMS President*

INTERNATIONAL RESEARCH & DEVELOPMENT SECTION

A New Era of Visual Communication over TETRA and TEDS

By: Harald Skinnemoen (AnsuR), Monika Kudrlova (T-SOFT)

The A-SIGHT project brings new eyes and visual situational awareness for mission-critical operations into TETRA networks, enabling highly efficient photo and video communication. Based on convergence between mission-critical satellite and radio communication, the RAIDO system from AnsuR, developed in the A-SIGHT project, offers interactive communication of operationally relevant visual geo-spatial visual content in high accuracy and low delay for TETRA and adaptive geo-referenced video streaming for TEDS. Both options support live web mapping and a common operational picture. Our objective is to develop, test and integrate a disruptive approach to mission-critical visual communications for TETRA and integrated hybrid networks. A-SIGHT provides users optimized Visual Situational Awareness, and improves decision-making and crisis management.



The A-SIGHT Project

A-SIGHT is creating an Adaptive System for Image communications in Global Hybrid TETRA networks, giving users remote eyes in critical operations using interactive and adaptive visual communication techniques over hybrid mobile TETRA radio and Inmarsat satellite communications. TETRA networks are used for mission-critical communications by public and private entities in over 120 countries in Europe and worldwide. Developed for voice, stakeholders now request data applications, and photo / video communications trigger most interest. A challenging option at data rates down to 3 kbps, such capabilities are virtually non-existent now.

The TETRA Enhanced Data Service, TEDS has somewhat better capacity, but it is limited (in Norway to 80 kbps) and variable as a function of distance to base stations and user demand. TEDS is sufficient for transferring *small* still photos, but is a challenging setting for *traditional* video transmissions with fixed video rates. Norway is among the first countries in the world to deploy TEDS, creating a framework allowing us to develop and verify solutions for mission-critical photo and video communication at low data rates. Even cellular mobile networks like, 3G and 4G will fall back to EDGE and GPRS in rural areas, and limit data rates if user demand is higher than capacity.

Terrestrial radio networks of any type are vulnerable to disasters and acts of terrorism, for instance, and during particularly critical situation, there is a risk they will not work well, or perhaps not have coverage at all. This is also true for operations at sea or with plane or UAV communication in the air. To be sure that mission-critical operations always has communications that works *anytime* and *anywhere*, satellite communications systems are needed. Hybrid networking across multiple networks creates redundancy, resilience and reliability.

There are a set of similarities between TETRA/TEDS and mobile satellite networks (as Inmarsat). Both used for critical communication of *content with operational relevance and effect*; have hand-held voice capability with a low rate data communications option (in the range of 2-13 kbps), and modest broadband communication capabilities. TETRA network integrations have usually been at the radio link level, backhauling connection to a remote or deployable base station via a satellite link, while applications that can adapt to different mission-critical bandwidth-limited networks are not widely explored.

Traditional visual communications technologies are generally based on transferring a compressed version of photos or videos from a sender to a receiver, basically targeting reproduction of pixels and frames, but not operationally relevant content at the receiver side. However, mission-critical users are not sending visual data desired for pleasure, but for supporting critical decision-making. The value of the information depends on what it can do for an operation, and not how well pixels are reproduced. In an era where software solutions often use “upload” and “download”, instead of “communicate”, limited radio network capacity creates fundamental challenges for traditional photo and video transfer.

A-SIGHT addresses geo-spatial visual communication for situational awareness, covering photos and videos as well as live video streaming for unknown, bandwidth-limited networks, in terms of technical development, field trials, promotion and efforts for a sustainable impact. We developed an operative pilot, and demonstrated an integrated SW solutions that can automatically hand over and adapt to TETRA, Satellite and 2G/3G/4G-networks. This is being implemented both in UAV and Convoy solutions.

A-SIGHT has three partners, with AnsuR Technologies in Norway as a lead, and doing the development for visual communication, T-SOFT in the Czech republic are doing related mapping and Quasar in Norway are working with user requirements and promotion. The project is co-funded by the Eurostars program, and has been working closely with dNk in Norway for TETRA/TEDS and Inmarsat for satcom. We are still inviting tests, comments and feedback from interested parties.

The relevant global safety and security markets are confirmed to be significant and global. The accumulated global market of A-SIGHT is estimated to 800 Million € by 2020. In addition the integrated satellite market for the same solution adds value to the development.

RAIDO Mission-Critical Multimedia Communications for Satellite and Radio Networks

AnsuR has developed a concept called RAIDO for mission-critical visual communication. **RAIDO** is the complete AnsuR software system for mission-critical multimedia communications. RAIDO consists of several products, modules and solutions where the main units are ASIGN, AMSIRA and AIR. RAIDO offers decision-makers improved situational awareness, through optimized communication of visual content with operational relevance, adaptive streaming, smart field access network management, geo-tagging and mapping.

Practical solutions include all or parts of the components, and encompass solutions for UAV and Convoys, where multiple cameras and wireless networking technologies combined in a **Field Communicator** allow **Central Command Centers** to manage how the visual information is sent and interact with the original content and quality in the field for rapid and accurate analysis using a minimum of network capacity.

The system combines advanced adaptive and robust real-time audio/video streaming with a near-real-time interactive access to operationally relevant high definition photos and video, providing an efficiently gain of 100 times, compared to sending visual content in full precision just in case it is needed. RAIDO Field Communicators can use one or several of satellite and radio communications technologies individually or simultaneously, and condition selections on content and operational requirements. The system consists of three products:

- **ASIGN Interactive communication** allows the receiver of audio-visual content to interact with the original data at the sender side, and focus network resources on operationally relevant content. ASIGN can reduce bandwidth needs by 99%, reduce content access costs and delay or increase number of cameras correspondingly, without sacrificing precision. Developed to work anywhere, anytime, for mobile satellite networks, ASIGN operates with any unknown, variable, even unreliable, bandwidth-limited network, and supports geo- and time-tagged photos and video communication with integration into maps. ASIGN Field Communicators can run on PC, smartphones and embedded Linux platforms, and support a wide range of cameras.
- **ASMIRA Adaptive Streaming** allows video encoders to adapt the rate of coding to unknown network capacity, using feedback from the receiver, where users also can set specific priorities and rates if desired. The stream can be protected against transmission errors using Network Coding. The sender can geo-tag the stream. ASMIRA receivers can control the Sender to cut streams into clips and generate still images form the original source. Additional Viewers can be connected to Receivers. ASMIRA runs on PC and embedded Linux.
- **AIR Smart Networking** allows Senders to be connected to several types of networks simultaneously. Selection of networks to use, one or several, can be based on an algorithm or controlled manually from sender or receiver. Traffic shaping and firewalling can be done per network dynamically, allowing cost and utilization control and management. AIR runs on Linux platforms.

RAIDO is about more than uploading image pixels or video frames. It targets scenarios where rapid remote access to observations, photos or video, can make a difference in critical operations, communicating content with operational effect. Relevance, whether experts, unmanned platforms or crowdsourced captures observations, is based on context: *Who is looking, when, why and how do observations relate to each other.* While photos may be captured in very high resolution, large photo/video file sizes could prohibit rapid transfer in high precision over slow radio and satellite networks.

The ASIGN sender module in RAIDO would push a small geo-tagged image initially to a remote location, allowing relevance to be assessed based on content, time & location. When required, full precision content as regions-of-interest can be pulled. Video clips are initially sent as a storyboard. ASIGN software can also send photos and satellite Earth Observation images to the field.

In the field, RAIDO Communicators connect to cameras and communicate content with remote RAIDO Commanders. ASIGN, ASMIRA and AIR are three separate products in the RAIDO family that also work together.

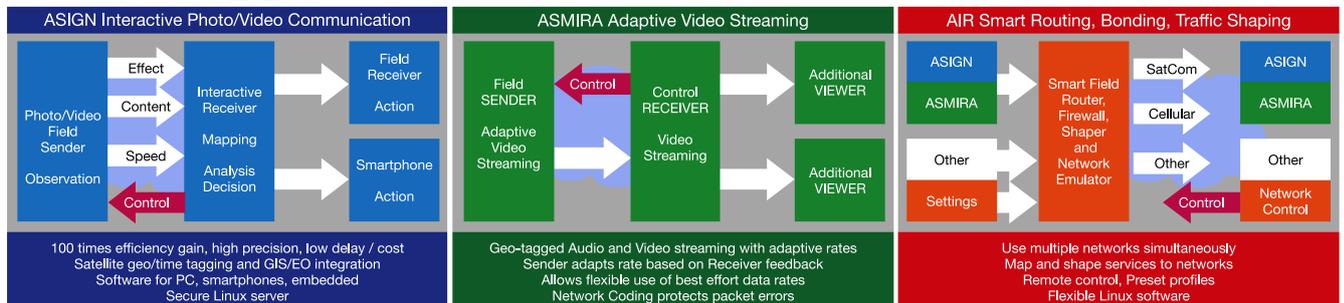
A basis for RAIDO is photo and video communications for unknown, bandwidth-limited networks, like some cellular, mobile satcom and Tetra/TEDS. This includes photo and video from mobile platforms, vehicles, ships, planes and UAVs. RAIDO can communicate content from satellite EO images, while smartphone apps allow trustful and reliable crowdsourcing of structured information. RAIDO supports smart connectivity to multiple networks and associated traffic shaping and firewalling.

APPLICATION AREAS include photo and video surveillance, security, crisis and disaster management. These are application areas where better situational awareness can improve

operations, as RAIDO can save over 99% of communications cost, and let decision-makers see what happens remotely quicker.

RAIDO SOLUTIONS can be customized to several sectors, integrating ASIGN, ASMIRA and AIR into vertical sectors and challenges.

- **RAIDO Unmanned** allows a UAV to use satellite and radio communication, sending high-resolution photos, day/night video and air traffic voice. The UAV Commander brings the sources together on ground operations centre.
- **RAIDO Convoy** is optimized for secure transport, allowing multiple cameras and networks for remote viewers to monitor.



Data Visualization and long term secure storage

Getting photo and video is one part of the story to provide users in crisis and security management of visual data. Once the visual data is transmitted from the field to the operation center (or vice versa) it is necessary to visualize it to supports the activities of crisis or security managers, and also store it.

A-SIGHT project had concentrated on end users and their needs on visual data transmitted via TETRA or TEDS radio networks. Most of the TETRA/TEDS end users are State or Municipal Police, Fire Brigades, Airports, Medical services etc. In crisis management they never know what will happen and what kind of information they will need. The most effective supporting tool proved to be Situation picture system combining on-line operational visual data with dynamic analytical data collected and analyzed in peaceful periods.

The screenshot shows the SITUNET web interface. At the top, it displays the date and time: 30.8.2014 18:25:45. Below this, there are navigation tabs: 'Aktuální situace', 'Objekty', 'Organizace', 'Značky', 'Vrstvy', and 'Foto'. The main content area is divided into two sections. On the left, there is a table listing photos with columns for 'Název', 'Typ souboru', 'Platnost od', and 'Platnost do'. The first row is selected. On the right, there is a 'Foto' section with a 'Soubor:' field, 'Platnost od:' and 'Platnost do:' dropdowns, and a 'Vrstva:' dropdown. Below this is a thumbnail of a photo showing a car on a track. To the right of the photo is a map view showing the location of the photo, with a scale bar and a search box.

SITUNET is a GIS based tool providing a common operational picture of a situation. It enables collection of all relevant information for visualization on the Situnet interactive map (for example, a picture of an emergency services situation); It optimizes and unifies information on the status and development of the situation from different perspectives (views); it provides a common (universal) connection with information resources through a standard interoperable interface; it provides a view of the situation in real time and in another arbitrarily defined period, visualization of the evolution of the situation over time, use models to simulate the movement of time during an exercise, etc.

During A-SIGHT project, the interoperable interface was created in order to receive and display on-line visual data from TETRA/TEDES networks and combine it with SITUNET interactive map to support decision-making. The operations officer has remote vision of the situation as well as access to various analytical and modelling data.

The other user need proved to be long term secure preservation of visual data. Users like Police or Fire Brigade have to be able later to use photos or videos in court as evidence. That is why they need long term storage of visual data with digital signature proving the author of the photo or video and the time stamp proving the time photo or video was taken and stored.

During A-SIGHT project the long term storage was created enabling to store visual data from TETRA/TEDES, add various metadata and digitally sign and timestamp it.

Conclusion

A-SIGHT has developed and proven operationally a novel system for visual communication in operations, using TETRA and other integrated networks, along with integration into visualization and archiving tool. Visual data communication is one of the most desirable capabilities for mission-critical users. A-SIGHT is a cost- and bandwidth efficient instrument and has the potential to improve situational awareness and decision-making, and thus ultimately to save lives, infrastructure and create a safer society. For further information please contact project manager Harald Skinnemoen (harald@ansur.no)

International Cooperative Research - Forecasting and Mitigation of Geohazard in Taiwan

Tainan, Taiwan September 15~17, October 5~9, November 3~5
Wen-Chi Lai, Taiwan Disaster Prevention Society

1) **14th Taiwan - Japan International Workshop on Hydrological and Geochemical Research for Earthquake Prediction** (September 15~17, 2015 at the National Cheng Kung University, Tainan, Taiwan)

The 1st International Workshop on Hydrological and Geochemical Research for Earthquake prediction had held on Sep. 24, 2002 at GSJ, AIST, Tsukuba, Japan. The workshop had good beginning to promote the research cooperation between Japan and Taiwan. The main purpose of the workshop this time is proceeded to collaborate, and provide an opportunity to share the precious experience with other researchers. The cooperative research activities on (1) Investigation of groundwater anomalies associated with the earthquake in Taiwan; (2) Analysis of the natural groundwater level changes in correlation to the geotectonic and meteorological activities; (3) Improving methodologies in monitoring and studying the groundwater anomalies with respect to geotectonic activities and/or other aspect as well; (4) Compiling the future periodically-monitored information of groundwater chemical and physical properties, and geotectonic anomalies; and (5) Analysis of the groundwater anomalies as earthquake precursors. In total, seventeen papers be presented and 86 attendance from Japan and Taiwan in this workshop.



Photo 1: 14th Taiwan - Japan International Workshop on Hydrological and Geochemical Research for Earthquake Prediction (September 15~17, 2015)

2) **2015 Taiwan - Japan Joint Symposium on Sediment-related Disasters** (October 5~9, 2015@Taichung, Hulien, Taiwan)

It has been 26 years for the Taiwan - Japan launched the cooperative works on mitigation and prevention for sediment-related disasters. The Taiwan Disaster Prevention Society co-chair the "Taiwan - Japan Joint Symposium on Sediment-related Disasters : Mechanism, Prediction and Assessment". We invited 12 specialists from Japan. The meeting hold in 10/5~10/6 in Taichung city and three days post-meeting field trip in central-island highway. Totally 216 attendance from the government agencies, universities, companies.



Photo 2: 2015 Taiwan - Japan Joint Symposium on Sediment-related Disasters (October 5~9, 2015@Taichung, Hulien, Taiwan)

3) 2015 International Workshop on Disaster Prevention and Mitigation Technology for Large-Scale Landslides (November 3~5, 2015@Taichung, Hulien, Taiwan)

The Taiwan government begin to operate a 10-year project issued after the 2009 compound disaster in Hsiaolin Village. The Key items issued included (1) The potential area of the compound disaster, (2) Influence area, (3) Evaluate the risk of the potential area, (4) Monitoring and warning criteria and (5) Evacuation planning and systems. For compound disaster mitigation strategies, the main objective is to ensure the ability of the evacuation system. To improve and combine existing mitigation strategies for single disasters such as floods, debris flows and landslides. Large-scale landslides are a new challenge in mountain area management in Taiwan. The meeting hold in 11/3~11/5 in Tainan city and two days field trip in south cross island highway. Ten papers presented by specialist from USA, Austria, Japan and Taiwan. Totally 206 attendance from the government agencies, universities, companies and other related members join the meeting.



Photo 3: 2015 Taiwan - Japan Joint Symposium on Sediment-related Disasters (November 3~5, 2015@National Cheng Kung University, Tainan, Taiwan)



Photo 4: Field Trip of 2015 Taiwan - Japan Joint Symposium on Sediment-related Disasters (November 3~5, 2015@Kaoshiung, Taiwan)

Introducing Smart Cities and Social Innovation project CLARA

by Roberto Gueli

R&D Manager EtnaHitech SCpA

Cloud pLAtform and smart underground imaging for natural Risk Assessment – CLARA is a research project supported by the Italian Ministry of Research and Education under the “Smart Cities and Communities and Social Innovation” initiative.

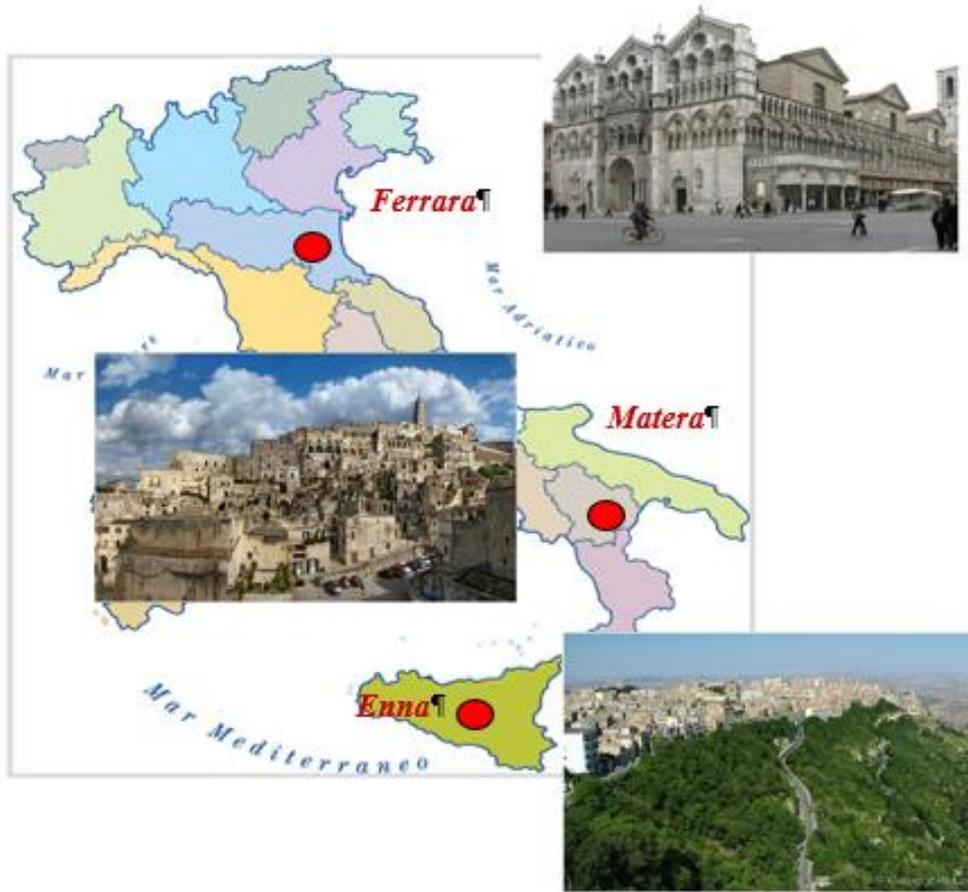
CLARA is a 3-years multidisciplinary project started September 2014, which involves research activities in different contexts such as risk perception and decision support systems. The key CLARA’s challenge is to enhance the community’s resilience. We will achieve this goal by investigating the individual and collective cognition during emergency and disaster management, in order to design effective smart tools for disaster prevention and management. In fact, analysis, assessment and mitigation of hydro-geological and seismic risk must be accompanied by a careful study of the human factors. In particular, analyzing perception of hydro-geological hazard by population, the trust among citizens and information or interventions implemented by Institutions appear to be the key-issue.

20 partners, among which there are Universities, research centres, and 2 clusters of both large and small sized ICT companies, are working side by side for achieving CLARA’s targets. Summarizing the primary CLARA’s objective is to addresses the current limitations of sensor infrastructures, systems integration, connectivity and interoperability by:

- Designing high-density multi-component sensor networks augmented with virtual and human sensors for the cost-efficient enhancement of the data source for precise prediction needed in the urban context.
- Designing a sharable deployment methodology on how to orchestrate set of building block data and services in order to develop Early Warning Systems (EWS) ensuring effective human understanding, communication and collaboration among people while they are facing natural hazard.
- Designing software tools able to check the consistency of the gathered multi-functional sensors data, in order to rank their degree of trust and convince those in power of the validity of the information.
- Designing software tools and integrating them in a Decision Support System (DSS) framework, able to build a holistic hazard scenario, figuring out the potential and critical dependencies among different urban infrastructures.
- Designing a knowledge base early warning system framework, integrating the modules described above.

The above mentioned objectives will be integrated in an innovative DSS/EWS building kit based on intelligent semantic interpretation within a service-oriented, distributable architecture. This kit will enable the integration of existing systems, their adaptation to specific local urban needs and the extension with innovative information and warning services for different kinds of stakeholders as secure, smoothly and cost-efficient as possible.

We will validate the achieved solution through three different 1-year lasting pilot trials driven by end users, which will be hosted by the Regional Province of Enna and in the towns of Ferrara and Matera.



Introduction to the EU Project DRIVER

DRIVER - helping to make innovative CM solutions useable, useful and used by emergency practitioners

Abstract

Crisis management (CM) is a very demanding sector and, because practitioners are often busy dealing with emergency situations, they do not always have the time to keep up with innovation concerning CM solutions. Furthermore, CM innovation will only be successful and of practical benefit if emerging solutions are taken up by end-users. The DRIVER Project seeks to address this challenge by testing solutions in campaigns of experiments that compare novel solutions with currently used ones and by combining them in scenarios of increasing complexity, thereby providing a sound evidence base for investment and procurement decisions. A distributed European test-bed of virtually-connected exercise facilities and crisis labs will facilitate the evaluation of new CM approaches or solutions and the development of a comprehensive portfolio of CM tools that, together, will provide sustainable impact for the future. In short, DRIVER aims to make innovative CM solutions useable, useful and used for and by emergency practitioners.

Introduction

This article provides a short introduction to the DRIVER (*Driving Innovation in Crisis Management for European Resilience*) Project, a large-scale, crisis management demonstration project funded by the EU under the Seventh Framework Programme (FP7). It comprises 36 partners drawn from researchers, solutions providers, platform partners that provide facilities and infrastructure for experimentation, end-users, and other interested stakeholders. It tests and evaluates a wide range of emerging solutions that are intended to support professional responders, communities and individuals in crisis management, and to help in building societal resilience. This article provides a general overview of what DRIVER seeks to achieve and how it works but does not go into detail about the individual solutions evaluated or the design and execution of the many experiments undertaken within the project. Future articles will report further on these aspects. In the meantime, the reader is kindly invited to visit the DRIVER website (www.driver-project.eu) for further information.

Challenges for innovation in the Crisis Management sector

In a crisis the immediate priority is to save lives and help people return to normality, and there is often little time to test new ideas or collect data. This, in turn, presents a challenge for innovation in the CM sector as CM practitioners do not necessarily have the time to keep abreast of relevant research and innovation. Furthermore, innovation will only be successful if it is taken up by end-users. Major crises can also frequently involve more than one country or region which may have differing CM infrastructures and cultures, and which may necessitate interfacing different systems and combining different solutions. CM innovation, therefore, must be capable of meeting these multifaceted challenges and delivering solutions that are modular, flexible and adaptable, that have been tested and evaluated, that are of greater benefit than existing ones, and that are capable of being adopted by end-users. Failure to meet these needs could result in increased costs of CM capability development or financial impacts due to inadequate management of ever more complex crises. It is not enough to develop useable next-generation solutions. Their usefulness must be assessed in the context of large scale disasters. And they will only get used by practitioners who will have become aware of their existence and who trust that they will substantially accrue their effectiveness.

The DRIVER Project and its scope

The broad aim of DRIVER is to valorise the incredible wealth of European innovation and science in CM. On one hand it will do so by assessing and hence delivering crisis management solutions that can be used and combined to address different types of large-scale crises. On the other hand DRIVER will develop better ways of evaluating future solutions in form of a European test-bed infrastructure and evaluation methodologies; these results will be sustainable far beyond the lifetime and scope of the project and applicable across the European Union to leverage the multiple opportunities to assess CM innovation.

DRIVER is not just about solutions and demonstrating whether they work or not as solutions. Rather, it is about whether they are useful for the end-users and cover those gaps that are identified, and whether they fulfil the needs that end-users have. Many CM solutions already exist but they are not integrated, are not available or are unable to work together. Solutions are means... what is relevant is not whether they work well or not, but whether they will have an impact in CM and help end-users in their work. DRIVER attempts therefore to go beyond the theoretical framework and to evaluate how solutions are going to benefit end-users in a practical sense and to provide a sustainable methodology for assessing emerging solutions in the future.

DRIVER starts from the experience that neither R&D in itself nor even strong end-user demand always leads to innovation in the CM domain. Additionally, as societies become more complex, the unpredictability, complexity and dynamics of potential crises put increasingly stringent demands on CM response. European CM capabilities already constitute a mature system-of-systems - heterogeneous and loosely-coupled local, regional and national systems able to collaborate in varying configurations and with varying degrees of interoperability. Radical changes could be very costly and likely to incur unacceptable loss of capability over a long transition phase.

DRIVER does not therefore attempt wholesale redesign of crisis management (CM) capabilities. Rather, building upon gap analyses undertaken in previous EU-funded road-mapping projects like ACRIMAS and CRYISIS, it is about improving the ability to adapt European CM to future demands by means of establishing a distributed European test-bed for CM capability development. This test-bed will consist of virtually-connected exercise facilities and crisis labs where end-users, providers, researchers, policymakers and other CM stakeholders can evaluate new solutions to emerging issues, and develop a comprehensive portfolio of CM tools; this not only encompasses technological solutions, but also operational concepts, approaches and policies.

DRIVER draws on existing EU research and best practices and builds upon these using a unique and multidisciplinary approach. Working together with local communities and authorities, civil contingency and technical relief agencies, it aims to improve the existing knowledge base. The experience gained during the project will be shared with crisis management practitioners, policy makers and technology suppliers, for example through local innovation for crisis management (I4CM) workshops. By raising capacity in areas like technical solutions, training and competence management, DRIVER focuses on creating a better-performing crisis management innovation ecosystem.

The DRIVER thematic dimension

DRIVER investigates solutions in three areas, selected for their complementarity: civil society resilience, strengthened responders, and training and learning across borders. These thematic dimensions do not cover the full range of CM innovation, but rather a representative set of areas

with vital innovation gaps to be addressed in order to cope with the climatic, societal and economic trends faced by today's CM practitioners.

In the area of civil society resilience DRIVER aims to understand and improve the resilience capacity of individuals, communities and local governments. Its focus is on civil society actors that are not professionally trained in CM. This includes supporting activities by crisis management experts. It focuses on mainly organisational but also IT solutions for facilitating psychosocial trainings, community engagement and local government assessments as well as strengthening crisis communication and spontaneous volunteer management as cross-cutting topics. Solutions evaluated cover preparedness, response and recovery phases. A variety of evaluation methods (e.g. exploration workshops, table-top exercises, participatory observation of field exercises) are applied to select, compile, discuss and test possible solutions. In the light of this experimental experience, ways of improving and implementing solutions will be suggested.

To strengthen responder communities DRIVER addresses their needs with regards to EU internal crises, namely: interoperability, information sharing, situation assessment, early warning, resource management, capacity building, and interaction with citizens. Its focus is on decision support and it tests, enhances and connects together a sample of crisis management solutions provided by consortium partners. These solutions have different levels of maturity and are mostly outcomes of previous EC research projects. A sample of 32 solutions in different domains of crisis management has already been tested and a selection of these will be interconnected to address some of the current identified CM gaps. Technical gaps are addressed but not institutional or political fields that influence cooperation beyond technical aspects. Examples of solutions evaluated include crowdsourcing based on mobile communications as the "first" responders are often the civilians located in the proximity of a crisis scenario.

To enhance the capacities and capabilities of trainers and human resources (HR) professionals dealing with those involved in crisis management at an operational level, DRIVER works on a series of training modules and HR means and frameworks that are developed and tested during the project. The main target audience are training professionals of all levels, from first responders to high level decision makers.

Making innovative CM solutions useable

Inertia to innovation exists in all sectors, but in CM and other domains of civil security there are some particular challenges. Since CM organisations are expected to deal with many types of crises it is easy to question whether a new solution is really better than the one it is proposed to replace in any given situation. A better evidence-base for CM capability investment decision-making is therefore needed.

The complexity of CM makes it hard to predict the potential benefits of new solutions and approaches analytically, particularly considering the variety of situations addressed, and even harder doing this in a way that convinces end-users to invest in those solutions. Therefore, there is no easy way to build an evidence-base other than to start by testing, benchmarking, and evaluating proposed solutions in realistic environments with CM practitioners, in comparison with their existing resources.

To arrive at sound and validated assessments of the benefits and shortcomings of new ideas, it is vital that assessments can be repeated, testing emerging solutions under varying conditions, and taking into account control variables that might otherwise have an unpredictable effect on the outcome. In the absence of such a systematic approach, test and demonstration efforts are unlikely

to effectively support the development and implementation of novel CM capabilities. As a matter of course, modelling and simulation are utilised in order to address the very large numbers of parameter variations needed and to be able to simulate dangerous scenarios.

To address the specific challenges of CM and to overcome these difficulties, DRIVER employs a methodology based on so-called “campaigns of experiments” that build up experience and knowledge step-by-step with increasingly complex scenarios and combinations of solutions. The initial campaigns of experiments are carried out in the three aforementioned thematic areas.

Initial experiments focus on a limited number of solutions and a relatively low level of complexity. The participating DRIVER partners contribute to the development of the experimental scenarios according to their expertise, e.g. platform partner hosts the experiment, solution providers integrate and connect the solutions, research organisations assess the outcome using rigorous scientific methods, etc.

Successively, in further campaigns, additional levels of complexity are added that combine different solutions in more demanding CM scenarios culminating in two so-called Joint Experiments and a Final Demonstration (see following section for further details). The scenarios of these complex experimentations have been selected as they are particularly relevant for a large-scale assessment of CM solutions.

Through the use of this systematic and multi-step methodology, DRIVER therefore is able to evaluate the maturity of CM solutions and contribute towards bringing them to a higher technical readiness level (TRL).



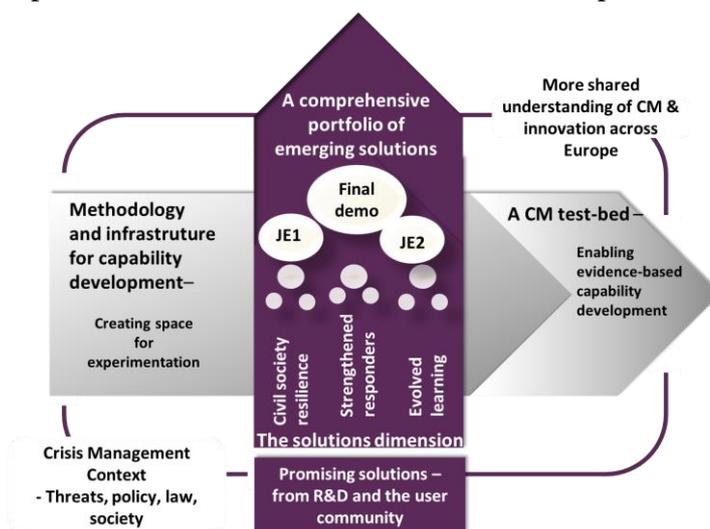
DRIVER results address a wide range of crisis scenarios

Making innovative CM solutions useful for practitioners

Taking a generalised example, an experiment early in the overall campaign of experiments comprised, for instance, potential solutions such as the use of a UAV (unmanned aerial vehicle) and bespoke traffic management software. The experimental hypothesis was that, used together, these tools would bring major benefits in a search and rescue situation by mapping a large area and helping to direct other emergency resources to perhaps hard-to-reach locations taking into account factors such as ground conditions or flooding. This experimental scenario compared the speed of response using current (legacy) tools and the new combinations of tools to establish whether the latter contribute towards quicker response and better decision-making, and whether they are cost-effective (the answer is *a priori* strongly positive).

In subsequent experimental campaigns, building upon the experience gained, such solutions will then be combined with others and evaluated in a more complex crisis scenario. Such a methodology

will contribute towards understanding how innovative solutions can provide benefits on a local, regional, national or international level and provide an evidence base to demonstrate to practitioners how they provide improved performance as compared to legacy solutions. Ultimately, building upon this experience, combinations of tested solutions will be evaluated in the Joint Experiments (JE) mentioned above that simulate complex scenarios representing potential cross-border crisis situations and, finally, in a large-scale Final Demonstration (FD). These will involve many project partners and will be conducted in the final phase of the project. The selected large-scale scenarios comprise flooding in connection with a pandemic (JE1), a major ice storm with power and ICT failures (JE2) and a Mediterranean tsunami with cascading effects (FD). This stepwise methodology provides an iterative route towards gradually adapting emerging solutions to meet operational constraints, creating acceptance among users through their active involvement in the experiments, and providing evidence to decision-makers that they are cost-effective. Important advice is additionally provided by an activity called “Assessment and Innovation”, focusing on economical, societal, ethical, legal and standardisation issues related to the next-generation solutions, the experiments, the test-bed and the stakeholder community; all these aspects are key to the sustainability of the DRIVER results.



A graphical overview of DRIVER

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Making sure that innovative CM solutions are used -building a DRIVER community and disseminating project results to stakeholders

The DRIVER Test-bed and Portfolio of Emerging Solutions are two key dimensions of DRIVER and they also constitute two of the three main science and technology objectives of DRIVER’s mission. The third key objective is the creation and support, through an online, interactive Community Platform, of an active and dynamic DRIVER community that includes all stakeholders concerned by societal and technological innovation in CM. This constantly-evolving and diverse community will facilitate a more deeply shared understanding of CM across Europe and contribute towards long-term sustainability of the results of the project.

The success of DRIVER in fully reaching its objectives also depends on executing a sound dissemination strategy to raise awareness, engage end-users, promote the achievements of the project, stimulate interest in CM innovation and, ultimately, promote the uptake of emerging solutions in a structured and effective manner to relevant CM stakeholders.



DRIVER dissemination workshop

(Image: R. Moore)

A further challenge here for DRIVER is to deal across different countries with a great diversity of stakeholders:

- policy and decision makers at EU institutional, Member State and international level

- practitioners, including public authorities and NGOs involved in CM
- businesses, including technology and solution suppliers
- researchers, including past and current CM-related research projects and academia
- standardisation organizations
- civil society in general

As the project progresses and starts to deliver first experimentation results an increasingly intense level of interaction is deployed to create better shared understanding among these stakeholders across Europe and is a prerequisite for a tailored adoption of the solutions within the DRIVER portfolio. Furthermore, such an interaction will strengthen the long-term sustainability of the DRIVER Test-bed and ultimately enhance European CM capabilities by providing the necessary infrastructure for further strategic development after the project has ended.

Future perspectives

DRIVER represents an opportunity to change the way practitioners and other stakeholders approach innovation in CM. This includes attitudes, mind-sets and processes, and all levels of an institution can be involved. To achieve this represents also a core challenge for the project. DRIVER's ambition is to increase CM capability in Europe covering training and competence management, technical solutions and civil society resilience. The synergies of all these competences, capacities and technologies will, in the end, create improvements. In order to achieve sustainable results the knowledge and experience amassed in DRIVER have to flow naturally into the usual day-to-day activities of end-users. If there is no acceptance from the end-users' side, the activities will remain unsustainable.

Further information

Further information about the DRIVER Project including details of participating partners, news about upcoming activities and events, and contact information can be found at the DRIVER website: www.driver-project.eu.

Pan-European DRIVER Lesson Sharing Workshop at TIEMS Annual Conference 2015



DRIVER (*Driving Innovation in Crisis Management for European Resilience*) is a large-scale demonstration project that addresses concept development, experimentation and innovation activities in crisis management (CM). It is aimed at improving European resilience (the ability to withstand and recover from unexpected shocks) and response in the face of major incidents or disasters. DRIVER will evaluate emerging solutions in three key areas: civil society resilience, responder coordination, and training and learning.

DRIVER is co-funded by the European Commission Seventh Framework Programme (FP7/2007-2013) under grant agreement no. 607798.

On 1st October 2015 the DRIVER project organized a Workshop on Pan-European lesson sharing at the TIEMS annual conference in Rome. The workshop was organized by the DRIVER partners that work on solutions related to ‘Training and Learning’; Dennis Andersson (FOI), Josine van de Ven (TNO) and Maciej Szulejewski (ITTI). All three were accompanied by an expert from the crisis management domain: Mrs. Van Dijk from the Safety Region Groningen in the Netherlands, Mrs Jankowska from the Ministry of Digitization and Administration, Republic of Poland, and Mr. Blommé from the Attunda Fire Brigade in Sweden. The main objective of this workshop was to look into new ways for European member states to learn with and from each other when it comes to effectively managing crises by sharing lessons learned. The Workshop was attended by crisis management practitioners and academics from different EU countries, all participants of the TIEMS conference.

The DRIVER Workshop on Pan-European lesson sharing focused on methods to identify lessons that are valuable to organisations in other sectors, regions and nations. The main outcomes of the Workshop are summarised as follows.

Cross border sharing

Participants noted that while disasters always happen at a certain location, i.e. they are local, the lessons we can learn may very well be of global interest. With increased lesson sharing, the chances increase to maintain vigilance and develop capabilities based on experiences from other organisations. Cross-border sharing is therefore considered primarily as an opportunity to increase the knowledge output from disasters. Some organisations and countries may have more experience in dealing with disasters than others; therefore it is important to look outside organisational, regional, and national boundaries and exchange knowledge and experience. This experience must be transferred by means of face-to-face interaction, for instance in the form of “exercises” between crisis management operators or as external observers.

Lesson sharing: targets and forums

Participants agreed that there are two generic lessons types: lessons for practitioners which aim at improving CM capabilities vs. lessons for the people which, instead, try to improve society's resilience by sharing best practices with everyone.

Civilians (volunteers) can be valuable resources in crisis management, and it can be wise to provide them with preparatory lessons to increase societal resilience. The participants concluded that lessons should be transmitted by people. People are the ones who should cross borders, and their interactions are the cross-border sharing process.

Lesson implementation

Participants agreed that no IT-solution for lessons sharing will work unless complemented by human instruction/verification or face-to-face (training) sessions. This can be done for example in structured forums, social media, workshops, seminars, etc. Participants agreed that serious gaming and simulations are effective methods for sharing lessons, best practices and experiences. They put a lesson in a real context, without the risks and effort of a real-life situation. As an alternative, storytelling in the form of a written or spoken story or an interactive hypermedia presentation (incorporating video, images, graphics...) was considered to be a good approach.

Trust

According to the participants, trust is a key enabler for information and lesson sharing. The first level of trust is that of establishing a first contact. Regardless of competencies and affiliation, having met someone in person increases the willingness to engage in lesson sharing, thus affective trust has a higher merit value than cognitive trust. Sometimes it is not (immediately) possible to hold an initial meeting. Therefore users of lessons should have meta-information that makes it possible for them to establish the trustworthiness, e.g. by providing information on the expertise of the source, the context of the lesson and the most important conditions to implement the lesson.

Certification, validation, and standardisation

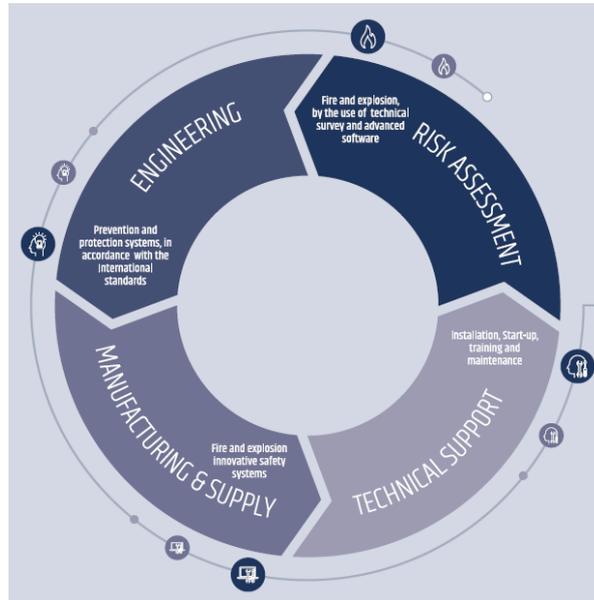
Implementing lessons taken from organisations operating in other countries is seen as extremely complicated due to organisational and cultural incompatibilities. Therefore, standardisation mechanisms could prove useful to bridge these barriers.

The blaming effect

One of the largest obstacles to collecting lessons was identified by the participants as the *you-are-doing-it-wrong* nature of the evaluation process. Evaluation, or lessons collection, process should never critique anyone. The focus of lesson sharing should instead be on positive outcomes, success stories and promoting procedures with extraordinary effectiveness.

For further questions about this topic or the more detailed paper on the workshop please contact: dennis.andersson@foi.se or maciej.szulejewski@itti.com.pl

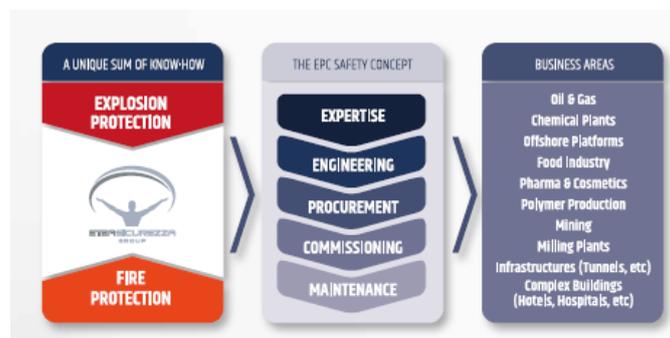
INDUSTRIAL NEWS SECTION

ETEA SICUREZZA Group**Innovative Safety Concepts & Hi-Tech Solutions****The last frontier of Integrated Safety.**

Etea Sicurezza Group is today recognized as competent authority in the safety and security fields at an international level.

High qualification and specialization of Etea Sicurezza personnel, long lasting experience in fire and explosion prevention consulting and high-level partnerships allowed Etea Sicurezza Group to achieve **a leading position in the worldwide market**.

Etea Sicurezza Group operates as EPC contractor (Engineering, Procurement and Construction) implementing safety systems according to the most innovative technologies present in the international market which are manufactured, modified and integrated for the supply of customized systems fully compliant with the international standards.

**ETEA SICUREZZA Group at a Glance**

An expanding network for a Worldwide presence

Etea Sicurezza Group has a strong international background having engineered the fire and explosion safety and security of industrial plants and civil structures in more than 30 countries in the world. The Group has offices in Europe, South America, the Middle East and North Africa, India.



Top Class Consultancy

The vital step towards real safety

Fires and Explosions can be catastrophic for any kind of business causing harm to employees, customers and the community, damage to premises, loss of stock and materials with interruption to trading.

Having a safe and secured building, plant or production process against fire and explosion hazard means to take measures relating to the HEALTH, ENVIRONMENTAL, BUSINESS CONTINUITY protection and the INSURANCE PREMIUM reduction.

ETEA SICUREZZA Group provides a complete range of consultancy services:

- Hazard analysis and classification of potentially explosive atmospheres (EN and NFPA codes)
- Fire and explosion risk assessment in accordance with the laws and standards in force
- Study of solutions to prevent and protect from fires and explosions in the industrial and civil fields
- Dedicated training courses for a practical approach to fire and explosion risk
- HAZOP, PHA, FT analysis, SIS and SIL study and calculation.

Simulation

The science of fires and explosions for new horizons.

The technicians of Etea Sicurezza Group are certified at an international level for the use of simulation software in fire and explosion protection.

- DESC (Dust Explosion Simulation Code)

DESC is a dust explosion simulator developed by a Consortium of 11 participants in a project sponsored by the European Community. The main aim of DESC project is to produce a CFD-code (Computational Fluid Dynamics) that can estimate the industrial dust explosion course in complex structures.

- FLACS (Flame Accelerator)

FLACS is an advanced tool for the modelling of ventilation, gas dispersion, vapour cloud explosions and blast in complex process areas. FLACS is used for the quantification and management of explosion risks in the offshore petroleum industry and onshore chemical industries.

- FSE (Fire Safety Engineering)

The FSE is a fire safety approach based on the application of scientific and engineering principles aimed to the people, property and environment protection in order to estimate a quantitative fire safety level assessment.

Explosion Protection

From advanced engineering to hi-tech solutions

Engineering

Study and design of the best explosion protection solutions according to each process and to the raw materials used.

Due to the deep knowledge of the technical features and application limits of the different systems our engineers are able to select and recommend the most suitable preventive and protective measures in order to grant high reliability of the designed systems and contribute to improved safety of the workers and of the industrial plants.

Systems

- Spark detection and extinguishing systems
- Static control systems (automatic earthing and bonding systems)
- Special heat detection systems for Hazardous Atmospheres
- Explosion protection systems (vent, indoor vent, suppression, mechanical and chemical isolation)
- Flame arrestors (for deflagration and detonation mode)
- Gas detection systems (linear and point detectors)

Fire Protection

From design to manufacturing for performance and innovation

Engineering

Each application requires a specific design and the selection of the most effective systems for fire detection and extinguishment. Our engineers master the best solutions for civil and industrial environments and design tailor-made safety concepts based on experience and technical skill.

All of the projects are fulfilled in accordance with the fire protection legal requirements based on the most restrictive international standards (EN, NFPA, FM, etc.)

Systems

- Special fire detection systems (aspiration smoke sensors, linear heat detectors, radio controlled detectors, infrared detectors, sensor cables for tunnels and mines)
- Special fire extinguishing systems (low pressure water mist, high pressure water mist, aerosol, foam, rim seal protection, inert gases)

- Special fire isolation systems (fire and smoke fixed and roller curtains).

ETEA Sicurezza Group is manufacturer of its own low pressure water mist system ETEA MIST LP which is sold at an international level and is heavily contributing to improve safety against fires all over the world.

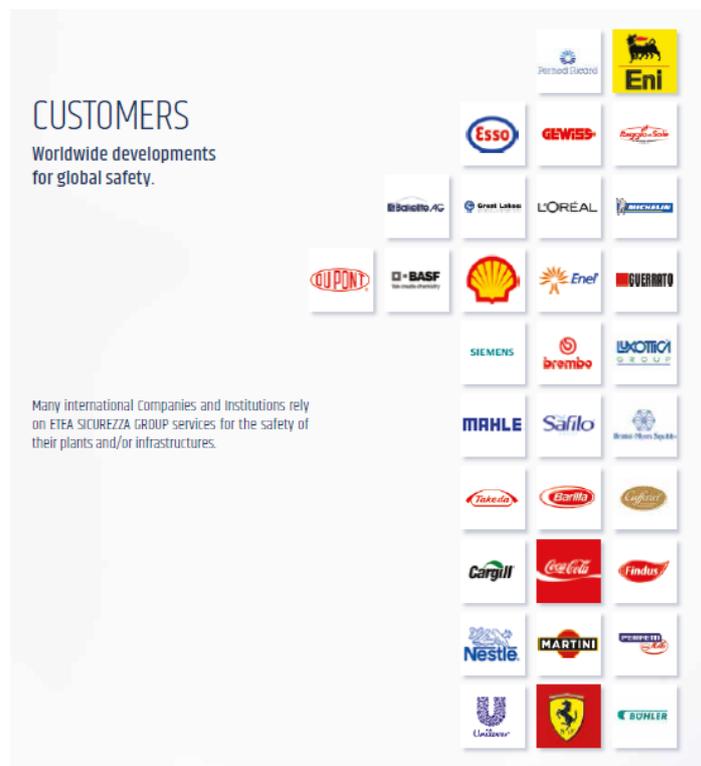
Research and Development

Our brains and resources at the service of technological growth

Due to a long and successful experience in the safety and security fields ETEA SICUREZZA GROUP was able to invest constantly in the technical development for fire and explosion simulation and to finance the study of more reliable and cheaper technologies aimed at risk reduction.

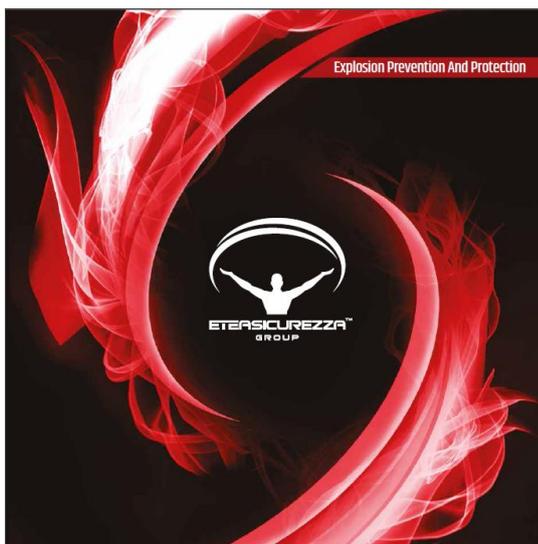
- Design and manufacturing of innovative water based fire fighting systems with low water consumption
- Design and implementation of mathematical models for dust and gas explosions simulation
- Design and implementation of mathematical models for predictable dust explosion effect simulation
- Design and implementation of mathematical models for predictable fire effect simulation
- Analysis and design of innovative explosion prevention/protection solutions
- Analysis and design of innovative solutions for the detection of exothermic phenomena inside process equipment

ETEA SICUREZZA GROUP has a very strong cooperation network in different countries of the world (Universities, Industrial Associations, Research Institutes, Local Authorities and Inspection Bodies, Notified Bodies, Fire and Explosion Expert Associations, Insurance Companies, Ministries, etc.) and a long list of excellent achievements worldwide.



Explosion Prevention and Protection

ETEA SICUREZZA Group



From advanced engineering to hi-tech solutions

The presence of an explosive atmosphere (vapours of flammable liquids or combustible dusts in suspension) combined with an ignition source (such as static discharge or friction due to moving metallic parts, etc.) causes an explosion, event more rare than a fire, but surely more serious in terms of human losses and damages to whole industrial plants.

So it is extremely important to adopt the minimum safety measures to prevent an explosion (cleaning in order to eliminate dust clouds or dust layers, use of anti-static materials, check of the correct bonding and earthing of the equipment, use of electrical equipment EX marked that is suitable to be used in explosive atmospheres, etc.)

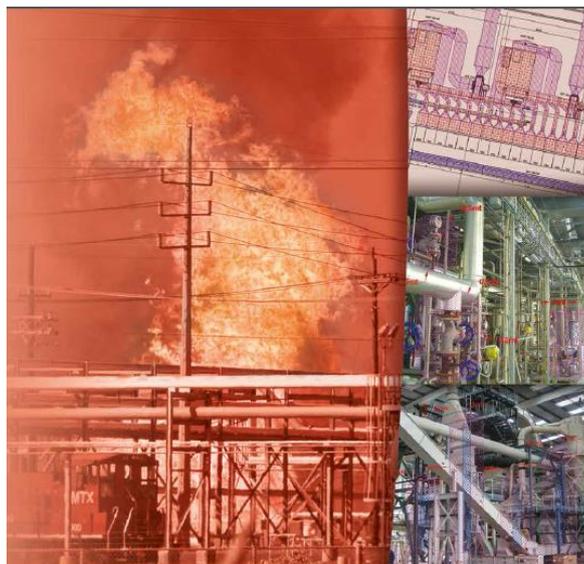
Moreover, when the explosion risk cannot be eliminated, it is very important to adopt the proper protection measures and isolate the explosion wherever that risk may be present (tanks, filters, deposits, conveyors, etc.) All explosion prevention and protection equipment must be ATEX approved.

A good risk analysis and hazardous areas classification are the first fundamental steps in order to assess the real hazard that an industrial plant is subjected to. No matter the sector, all industrial fields are involved to some extent: food, beverages, chemical, oil & gas, pharmaceutical, cosmetic, etc.

How can we prevent an explosion by proper technical measures?

An explosion can be prevented in many ways:

- By earthing properly all industrial equipment



- By constantly checking temperature inside the process
- By checking the presence of hot particles and sparks inside the pipeline
- By checking the gas concentration inside and outside the process.

Static Earthing Control

Automatic static control systems with interlock capacity for the correct earthing of road vehicles, intermediate bulk containers, small drums, big-bags, parts of machinery, etc.



Spark detection and extinguishment

In pneumatic transports and mechanical conveying systems carrying combustible materials, flying sparks are often causing fires and filter explosions.

In order to avoid this risk, it is necessary to monitor conveying and extraction systems for flying sparks and to safeguard them by spark extinguishing systems.



Temperature detection for ATEX zones

In order to monitor the temperature inside the process (pipeline, filters, silos, etc.) it is possible to use ETEX heat detection system which is suitable to all EX zones (0, 1, 2, 20, 21, 22) and for both surface industries and mines.



Low Pressure Watermist System

ETEASICUREZZA Group

Special Fire Extinguishing Systems

ETEASICUREZZA MIST LP SYSTEM

Fire Extinguishing Systems Based on Low Pressure Water Mist Principle

Dispensing water in small droplets (few micron diameter) allows to fight the fire effectively by means of three distinct principles, which consist of:

- **accelerating** the cooling down of fuel, by a more rapid process of water evaporation;
- **suppressing** the fire, thanks to a partial replacement of oxygen with the water in the area surrounding the fire;
- **containing** the radiant heat of flames, by saturating the environment where fire develops.



ETEASICUREZZA MIST LP systems generate water mist using low operating pressure (3.5 ÷ 6.0 bar), thus resulting among the most efficient fire fighting water based systems present on the market.

Advantages of ETEASICUREZZA MIST LP Systems over High Pressure Systems

- **Remarkable reduction** of material and installation costs.
- Use of pipes made of polyethylene or carbon steel, upstream the filters, and galvanized or stainless steel AISI 304, downstream the filters.
- **Use of water from existing systems** (sprinkler systems or hydrants) without implementing additional pumping stations.
- **Direct water supply** from Fire Brigades emergency water net connection.
- **Reduction of electrical consumption.**
- **Efficiency of the system** also for HHS fire hazard, with intensive storage up to 8 meter height.

Advantages of ETEASICUREZZA Mist LP Systems over Traditional Sprinkler Systems

- **Remarkable reduction (up to 1/3) of the amount of water**, resulting in less damages caused by water.
- The small diameters of pipes **reduce installation costs** and the overall volume of the system.
- **Fast installation** with press-fit joints.
- Smaller pumping stations, with **reduction of electrical consumption** and allocation space.
- Smaller water tanks, with **lower costs** and **smaller allocation areas**.

Low Pressure Water Mist Risks and Applications

ETEA MIST LP systems provide a wide range of applications depending on the different activities exposed to fire risk: museums, libraries, archives, technical spaces, garages, warehouses, production plants and hazardous locations.

- Activities with LH classified risks (nozzles with and without bulb; hmax: 3.5m);
- Activities with OH1 classified risks (nozzles with and without bulb; hmax: 3.5m);
- Activities with OH2 classified risks (nozzles with and without bulb; hmax: 8m);
- Activities with OH3 classified risks (nozzles with and without bulb; hmax: 8m);
- Activities with OH4 classified risks (nozzles with and without bulb; hmax: 8m);
- Activities with HHS classified risks (nozzles with and without bulb; hmax: 8m);

For each activity falling under the risk levels listed above ETEA has all the necessary fire tests (Test Reports issued by Notified Bodies in accordance with CEN / TS 14972) in order to help the design engineers to apply / design Water Mist Systems and then get the validation by the competent Authorities (Fire Brigades or any other AHJ).

DESIGN OF ETEA MIST LP SYSTEMS

The international technical standards for designing low pressure water mist systems are the following:

- CEN/TS 14972 Fixed Firefighting Systems - Watermist Systems - Design And Installation
- EN 12845 Fixed Firefighting Systems - Automatic Sprinkler Systems - Design, Installation And Maintenance
- NFPA 750 Water Mist Fire Protection Systems.

CERTIFICATIONS AND APPROVALS

- in compliance with CEN/TS 14972.

> ETEA MIST LP SYSTEMS



ETEA MIST LP DELUGE SYSTEM

1. Aspiration Smoke Detection system;
2. Linear Heat Detection system;
3. Control Unit for extinguishing system activation (EN 12094-1);
4. Pump group ETEA PUMP (CEN/TS 14972);
5. Deluge valve D-Valve (CEN/TS 14972);
6. Open nozzle ET1, with K factor of 2,7 lt/min/ $\sqrt{\text{bar}}$ (CEN/TS 14972);
7. Open nozzle ET2, with K factor of 4,8 lt/min/ $\sqrt{\text{bar}}$ (CEN/TS 14972).



ETEA MIST LP WET/DRY SYSTEM

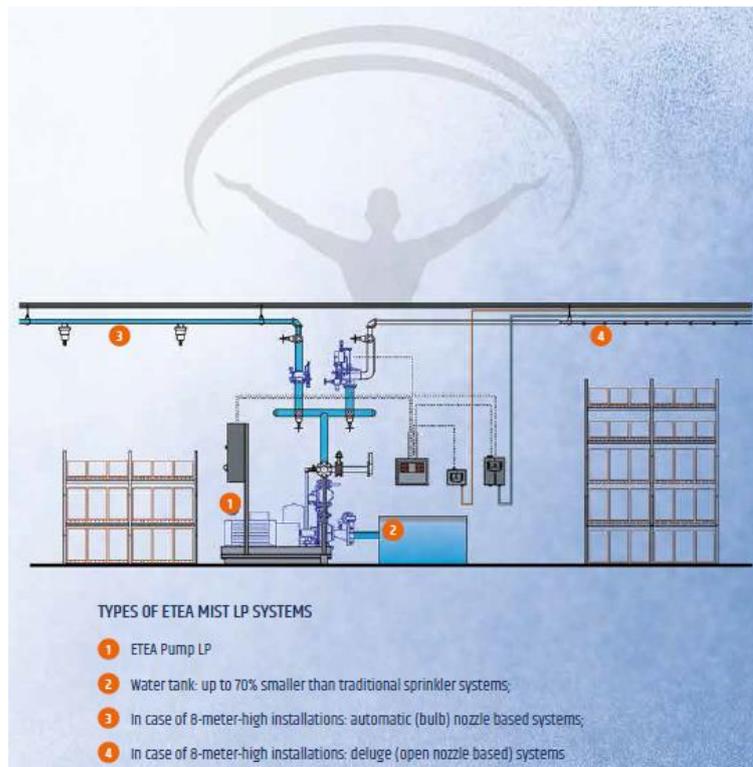
1. Pump group ETEA PUMP (CEN/TS 14972);
2. Wet valve ETEA W-Valve (CEN/TS 14972);
3. Nozzle ET3 IDF, with thermal bulb, K factor of 22 lt/min/ $\sqrt{\text{bar}}$ (CEN/TS 14972);
4. Nozzle ET3, with thermal bulb, K factor of 14 lt/min/ $\sqrt{\text{bar}}$ (CEN/TS 14972);
5. Nozzle ET4, with thermal bulb, K factor of 14 lt/min/ $\sqrt{\text{bar}}$ (CEN/TS 14972).

In order to improve the performances of ETEA MIST LP systems it is possible to mix water with a special additive which has the following features:



WETTING AGENT

1. Suitable for Class A and B fires;
2. Fully biodegradable, does not leave harmful residues behind;
3. Very fast extinguishing, 6 times faster than water;
4. It prevents re-ignition of fire (reduced water consumption);
5. Nontoxic for people, animals and the environment;
6. Highly efficient (only 3%-6% mix);
7. Has strong cooling down effect;
8. No costly cleaning-up operation because what is left will work as a fertilizer;
9. Can be used with salt or fresh water and fits on all equipment;
10. Compliant with EN 1568 Parts 3 and 4 Fire extinguishing media. Foam concentrates. Specification for low expansion foam concentrates for surface application to water-immiscible liquids.



INTERNATIONAL CONFERENCES AND WORKSHOPS SECTION

**International Workshop on Innovation for Crisis Management
(I4CM)****8 & 9 December 2015, Berlin**

The [DRIVER](#) (Driving Innovation for European Resilience and crisis management) project will hold its second DRIVER I4CM Workshop in Berlin 2015, 8-9th December 2015 at the Fraunhofer Forum, Berlin, Germany.

The German Federal Agency for Technical Relief (THW) and the Fraunhofer Institute for Technological Trend Analysis (INT) are pleased to co-host this interactive regional workshop as part of the current dialogue on innovation in crisis management. The Workshop will comprise keynote speeches, panel discussions, parallel interactive working sessions and demonstrations and offers extensive networking opportunities, including a social event on the evening of the first day.

The event in particular targets crisis management practitioners that take an interest in research and who possess indispensable operational knowledge to guide crisis management research and innovation. The workshop and panel sessions will be in English and in German. English translation will be provided. There will be no participation fees for attendees of this event.

For further information about the programme and to apply for registration visit: <https://www.eurtd.com/driver/i4cm/berlin/index.php> or follow https://twitter.com/I4CM_DRIVER.



PSCE Conference & H2020 Brokerage Event

Oxford, United Kingdom, December 8-10, 2015

Public Safety Communication Europe Forum (PSCE) is pleased to invite you to its upcoming Conference & H2020 Brokerage event to be held on 8-9-10 December 2015 in Oxford, UK.

PSCE is an international association aiming at improving provision of public safety communications and information management systems and the safety of the citizens during crisis and emergency situations. PSCE provides a unique common platform for researchers, industry and users enabling regular exchange of ideas, information, experiences and best practices.

The conference will be an excellent occasion to find answers to the following questions:

- Debating the results of **WRC'15** - Is 700MHz going to be available for Public Safety, by what means, and by when?
- What is the roadmap for **PPDR 4G**?
- Will 4G transition to **5G**? Do we have to start again? What new benefits will 5G bring for Public Safety?
- The increasing deluge of **Social Media**, and Information Exchange for Emergency Management: What are the challenges from a social, legal and ethical perspective?
- Key challenges for the security and resilience of next generation **mobile broadband for PPDR**.

H2020 Brokerage event

The brokerage event on the upcoming ICT and security H2020 calls that will be held on 8 December 2015 at 15:30 will be a good occasion to prepare yourselves and find synergies. Participation to this event is free of charge.

Social Event at St Peter College

We would be happy to welcome you to the **Gala Dinner** to be held at [St Peter's College](#) on 9th December 2015.

Accommodation

Accommodation is available at [St Anne's College](#) at £75 per night (approx. 100 €).

Please use the [link](#) with the promotional code "**PSCE19221**" and select the conference dates. After the 10th of November, rooms will not be guaranteed.

The Agenda and the Registration forms are available here:

<http://www.psc-europe.eu/index.php?id=429>

For more information, please contact secretariat@psc-europe.eu

Asia Emergency Management Expo and Conference

10 - 12 May 2016



While the Asia-Pacific region's urbanization rate still lies below 50%, its urban population has already surpassed the combined population of the US and the EU. Today, more than half of the world's largest cities can be found in the Asia-Pacific region and there is no end in sight for the increasing urbanization.

In the same time, the reports of tragedies occurring in urban areas have increased significantly. AEMC – Asia's specialized Emergency Management Conference for Urban Areas, is addressing this trend by focusing on emergencies – both natural and human-made – that take place typically in areas with high population densities.

Don't miss the perfect opportunity to meet with other decision makers and practitioners in risk and emergency management, business continuity and disaster recovery at AEMC and AEME!

AEME is the Asia-Pacific Hub for Emergency Management. It serves as an international trade platform for service providers, manufacturers, trading companies and non-governmental organizations providing a broad range of products and services (e.g. protective clothing and equipment, medical and first aid services, telecommunications).

Why attend?

For Market Intelligence:

- Industry professionals from around the world are gathered, creating a forum for an exchange of information and views. Get an insight into the newest technologies and trends in the emergency management industry and enhance your organization's market intelligence.

For Network Building:

- Benefit from the invaluable networking opportunities with speakers, delegates, top decision makers and professionals from all over the world.

For an Experience beyond a Tradeshow:

- Enjoy our interactive program that features cutting-edge speakers, workshops, conference and much more.

Come and join us in Macao for the Asia Emergency Management Expo and Conference from 10 to 12 May 2016!

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The 6th Annual Conference of TIEMS China Chapter

Successfully held in Beijing, China in October 29th 30th, 2015

[30th October 2015, Beijing] To implement the "Opinion of the General Office of the State Council of China on Accelerating the Development of Emergency Industry" issued on December 24, 2014, and to promote the emergency products, technologies and services from exchanges and cooperation, the TIEMS China Chapter in conjunction with the China Ministry of Industry Information Technology (MIIT) held Emergency Industry Development Conference 2015 and the Sixth Annual Conference of The International Emergency Management Society (TIEMS) China Chapter in Beijing Riverside Hotel on October 29th -30th, 2015.

The theme of the Conference is "Developing the emergency industry, Improving the capability of emergency management, Serving economy and society". Mr. Li Xiaodong, Director of Emergency Management Office of the State Council of China, Mr. Feng Fei, Vice Minister of the China Ministry of Industry Information Technology(MIIT), Mr. Zhu Yan , Deputy Secretary General of General Office of the People's Government of Beijing Municipality, Mr. Shan Chunchang, President of TIEMS China Chapter, and Ministry of Civil Affairs Disaster Reduction Center, Ministry of Land and Resources, National Bureau of Statistics, the State intellectual Property Office, General Protection and Crisis Management of French, EU-China Project Office in China, the German International Cooperation Agency, the European Commission Humanitarian Aid and Crisis Response Department, the Greek Civil Protection agency, as well as Beijing, Shanghai, Chongqing, Shaanxi, Hebei, Shanxi, Jiangsu, Inner Mongolia and other provinces and relevant departments and relevant guests, a total of more than 800 participants attended the Conference.

The annual Conference is made up of 1) TIEMS pre-conference training on October 27th and 28th; 2) plenary session lectures; 3) round-table forum; 4) exhibition of emergency products and services.



The Opening session of the Sixth Annual Conference of TIEMS China Chapter

Mr. Feng Fei, vice Minister of the Ministry of Industry Information Technology (MIIT) made an opening speech in the conference. Mr. Feng said that the development of emergency industry is a major measure to protect public safety and promote steady economic growth. China must weave a public safety net, develop high-end emergency products and services, and cultivate emergency industry to a new standard with effort. Developing Emergency industry should focus on strengthening international exchanges, actively promoting and advocating emergency industrial cooperation in "the Silk Road Economic Belt and the 21st-Century Maritime Silk Road", while striving to consolidate the foundation of emergency industry, and formulate product catalogue of China emergency industry.

The International Emergency Management Society (www.tiems.org)

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Mr. Feng Fei, Vice Minister of the Ministry of Industry Information Technology (MIIT) made opening speech in the TIEMS China Chapter 2015 annual conference

Prof. Shan Chunchang, President of TIEMS China Chapter made a keynote speech entitled "Thinking of Public Safety and Emergency Management in China". He analyzed China's public security situation from two aspects: the development trend of domestic and foreign public safety and emergency management, the practice and thinking from the practice.



Prof. Shan Chunchang, President of TIEMS China Chapter, made a keynote speech

Mr. Qu Guosheng, Vice President of TIEMS International and TIEMS China Chapter, made also a keynote speech entitled "the Forefront of Development of International Emergency Management ". Professor Qu highlighted on the relevant circumstances and enlightenment in the 22nd Annual Conference of TIEMS 2015 in Rome, Italy.



Prof. Xuelan, President of College of Public Management of Tsinghua University and Vice President of TIEMS China Chapter made a keynote speech with the top design and thinkings of public emergency management in China.



Mr. Yangbin, Vice President of Xinxingjihua company and Vice President of TIEMS China Chapter hold the afternoon sessions in the conference.



Mr. Yangbin, Vice President of Xinxingjihua company and Vice President of TIEMS China Chapter

Mr. Jack Zhang, Treasurer of TIEMS International and VP of TIEMS China Chapter, Chairman of Beijing Harmony Technologies Co.,Ltd attended the conference as a guest expert. He made a speech and communication at the 1st Round-table Session whose theme is "Resilience on Big Cities" in the morning of October 30th 2015.



Chairman Jack Zhang (1st from right), was invited to participate in Emergency Management Round-table Forum

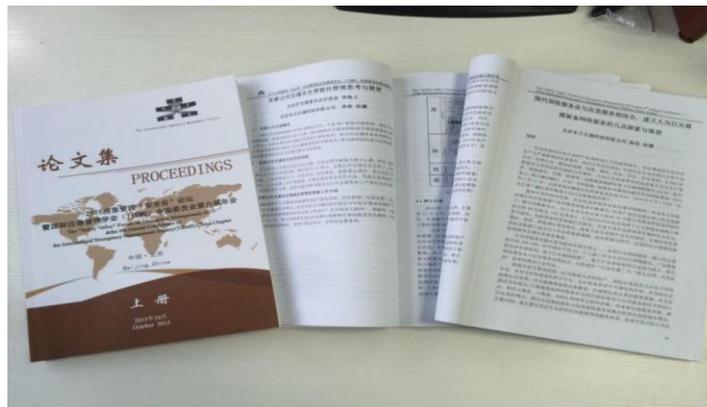


VP Jack Zhang (1st from right) in Emergency Management Round-table Forum



Mr. Jack Zhang(right), the Treasurer of TIEMS International and VP of TIEMS China Chapter, with Mr. Gui Weimin(left), Secretary General of the Shaanxi Provincial People's Congress, and Prof. Shan Chunchang, President of TIEMS China Chapter

It is worth mentioning that Beijing Harmony Technologies Co.,Ltd and Z-park Industry Alliance of Emergency Management, as co-organizers of the Conference, had been selected five papers by the Proceedings. The five papers are "Alarm Problems and Solutions existed in Production Safety Emergency Monitoring And Early Warning Of IoT", "Model of Modern Insurance Services Combining With Emergency Service in Catastrophe Rescue And Equipment Online Services", "The Thinking And Outlook On The Beijing Public Traffic Safety Intelligent Management", "low-resolution Face recognition technology in intelligent security surveillance applications sixth dimension index Design and Analysis of cloud computing platform services", and "risk-based evaluation system for disaster prevention and mitigation under the standard of smart city construction in China".



Proceedings of the TIEMS China Chapter annual conference 2015

Conference - Petroleum & Petrochemical Spill Response and Environmental Remediation

Press Release (November 18, 2015)

The China International Conference on Petroleum & Petrochemical Spill Response and Environmental Remediation (PPSRER 2015), jointly presented by the Sino-Global Energy Magazine and The Oriental Pro-Energy Consulting Organization (Topco), co-organized by Tianjin Nangang Industrial Zone, was successfully held on 18-19 November, 2015 in Tianjin, China. PPSRER 2015 got support and presentation from Ministry of Environmental Protection of China, State Administration of Work Safety of China and The International Emergency Management Society (TIEMS), DuPont, Sinopec, School of Environment Tsinghua University, Veolia, etc.

More than 200 experts from emergency and environmental restoration industry were invited both from home and abroad. Summarized and shared good experiences and practices, the event had a very good discussion and communication on petroleum and petrochemical emergency, disposal and environmental and ecological restoration, which will be helpful for Chinese government organization and industry companies to lowering and managing risks, improving emergency response abilities and preparedness, and protecting [ecological environment](#).



TIEMS President K. Harale Drager and Vice President Qu Guosheng participate the Conference.





PPSRER 2016 will take place in November in Beijing with the 5th Conference & Exhibition—Oil Spill Response Workshop (OSRW 2016). There will be over 100 exhibitors and more than 1000 delegates and trade visitors.

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Summit of Capacity Building of Disaster Medical Rescue Professional Team

-Beijing, China, October 19-20, 2015-

The Summit of Capacity Building of Disaster Medical Rescue Team was held in Beijing in 19-20, Oct., 2015. The summit was organized by The International Emergency Management Society (TIEMS), The General Hospital of the Chinese People's Armed Police Forces, Chinese Center for Disease Control and Prevention (China CDC), and Disaster Medical Task Force of China Medical Association, was jointly organized by Shanghai East Hospital (Chinese Disaster Relief Medicine) magazine, and also by the Emergency Medical Task Force of TIEMS and Beijing Zhongnanlianke Information Technology Promotion Center. At the opening ceremony of the summit, Qu Guosheng, TIEMS Vice President, Expert Group Leader of Chinese Earthquake Search and Rescue, Deputy General Team Leader of CISAR, Sun Shengxue, Vice-President of the General Hospital of Chinese Armed Police Force, Feng Zijian, Deputy Director of the China CDC, Chen Yanxi, Deputy Director of Department of Emergency Medicine, Shanghai Oriental Hospital made a very warm and welcoming speech. The total participant count for the summit was over 300 people.





QU Guosheng, TIEMS Vice President speaking at the Opening Ceremony



Sun Zhenxue, Vice President of The General Hospital of the Chinese People's Armed Police Forces



Feng Zijian, Deputy Director of Chinese Center for Disease Control and Prevention (China CDC)



Chen Yanxi, Director of Shanghai East Hospital Emergency Office and Deputy Director of Shanghai East Hospital Emergency Medicine Department

The summit is divided into the following sessions: the main theme report after opening ceremony, emergency medical care coordination and commanding and long-range rescue, emergency medical rescue, major disaster medical rescue and major epidemic health emergency and rescue (round table dialogue), and other special sessions.

The summit focused on discussions regarding the Nepal Ms8.1 earthquake, eBola outbreak of infectious diseases treatment and prevention, the explosive accident of Tianjin Binhai, which focused on the medical rescue and summarized the experiences and lessons learned.

Workshops also focused on major disasters where there were serious injuries and casualties and how to improve on rapid responses, including the efficient and effective use of transport efforts to reach those impacted and help them recovery from the situation. These rapid response techniques, including helicopter rescue is widely adopted in many countries and the experiences – and lessons learned – can help in the years to come to assist with improving the medical responses during other potential situation.

The following experts give the presentations:



Jing Xiaobo, Deputy director of Operation Monitoring and Coordination Bureau of Ministry of Industry and Information Technology of the People's Republic of China



Li Qun, Director of Health Emergency Center of China CDC



Yang Feng, Director of Emergency Guidance Office of National Health and Family Planning Commission of the People's Republic of China



Lu Lin, Director of China's Yunnan CDC



Peng Bibo, Deputy Director of Medical Department of The General Hospital of the Chinese People's Armed Police Forces and Deputy Director of Chinese Journal of Disaster Medicine



Wang Zhixiang, The Secretary General of Chinese Society of Aeronautics and Astronautics Medicine



Wei Yanfang, Director of Intensive Medicine of The Red Cross Emergency Center of Beijing and 999 Aviation Medical Rescue Team Captain



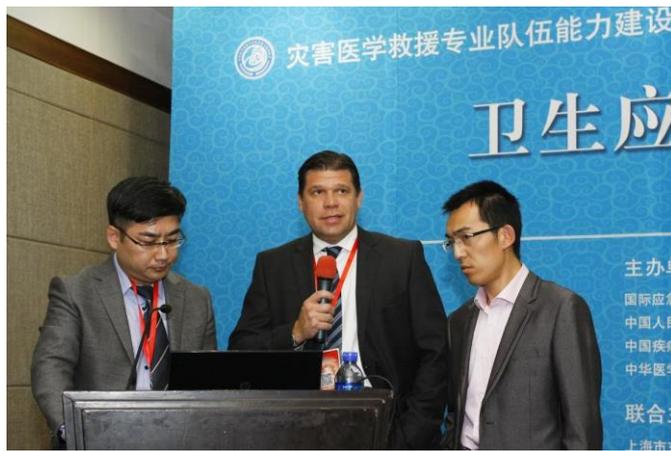
Liu Jiang, Deputy Director of Medical Teaching and Research Section of the People's Liberation Army Logistics Institute



Yang Daming, Vice President of Shanxi Jincheng Coal Group General Hospital



Chen Ran, Director of The International Emergency Management Society Emergency Medical Committee (TEMC)



Antonio Martos, Professor of university of Miami trauma center and Remote medical director of the center for the world



Ni Daxin, Deputy Director of Health Emergency Center of China CDC, Jiang Tianjun, Deputy Director of 302 Hospital Diagnosis and Treatment of Infectious Diseases and Research Center of The People's Liberation Army, Li Xinwang, Director of Infection Center of Beijing Ditan Hospital, He Xiong, and Song Tie, Deputy Director of Departments China's Beijing CDC in Session of major disaster medical rescue and major epidemic health emergency and rescue.

Based on the local medical institutions, firefighting brigade and related ministries and departments that set up disaster rescue teams, there was tremendous progress and use of multiple rescue techniques that helped save lives and increase professional awareness. The host and co-organizers of the summit will continue to build a communication platform of disaster medical rescue capabilities, so as to rapidly improve disaster medical rescue capabilities.

Conference of Korean Society of Disaster & Security (KSDS) and TIEMS Korea Chapter

The 2015 Annual Conference took place 26th November 2015 and was held along with “Korea International Safety & Security Expo 2015” at Korea International Exhibition Center (KINTEX) in Ilsan.



Opening speech by KSDS Chairman Dr. Jae Kwon Kim.



The KSDS 2015 Annual Conference gathered 300 participants, approx. 100 professors, 100 businessmen, 50 researchers and 50 students. Presentations ranged from topics within the medical field to technical subjects.



Professor Changsam Jeong from Induk University



Emergency & Disaster Expert, Professor/MD Soon-Joo Wang presenting the 2015 Middle East Respiratory Syndrome (MERS) outbreak in South Korea, causing death of 37 people this year.

The response of emergency medical center in disaster : a case of MERS **below.**

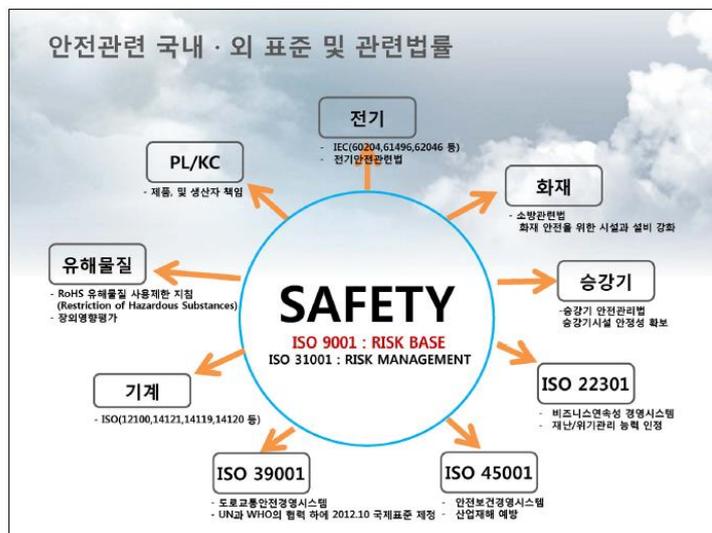




Professor Youngjae Lee is delivering a presentation to local government officers from all over Korea



President of Korean Standards Association Ph.D. Soo Hyun Baek presented the historical development, status and future of safety standards in South Korea.



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Parallel sessions during the KSDS Annual Conference engaged a large number of government officials.



Lectures including research and technologies for road maintenance, such as Investigation and Analysis for Road cavity by use of GPR (Ground Penetrating Radar), and Road Sinkhole agreement in Seoul.

Robotics Assisted Bridge Inspection Tool

Chloride-induced deteriorations in concrete bridge deck



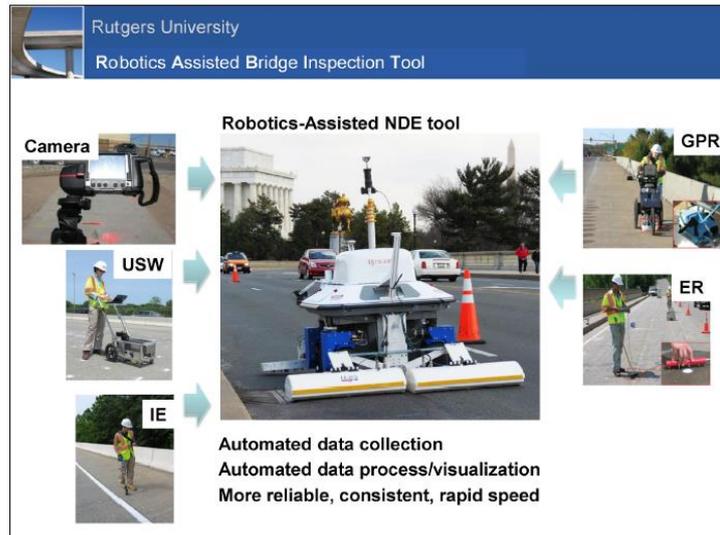
Spreading deicing materials



Deteriorations in concrete

→ rebar corrosion, section loss, breakage of strand, cracking, scaling, delaminations, etc.

50% to 85% of bridge maintenance funds to 'bridge deck'

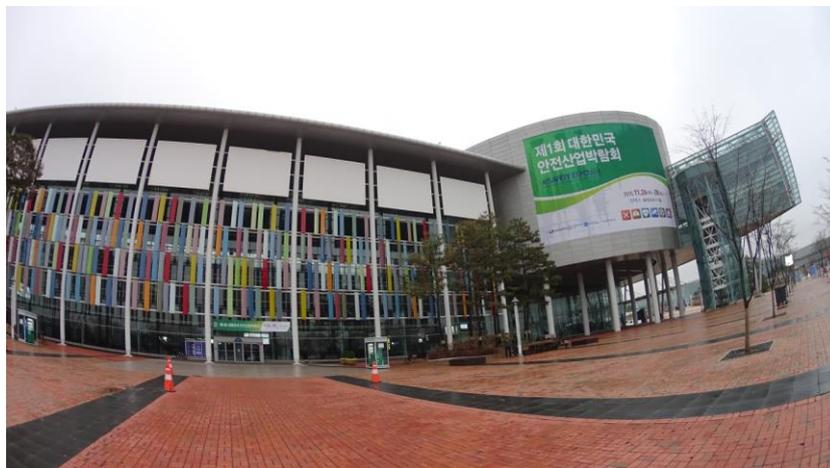


Panel debate during the parallel session of the KSDS Annual Conference.



Korea International Safety & Security Expo 2015

Newly established governmental body of Republic of Korea, MPSS (Ministry of Public Safety and Security), is said to have actively driven the new of its kind 3-day exhibition. According to the organizers, Korean government made a bold decision to increase the investment in safety and security to 1.9 billion USD, 29.3 % rise compared to the previous year.



Conference and Exhibition venue: KINTEX 1 of the Korea International Exhibition Center.

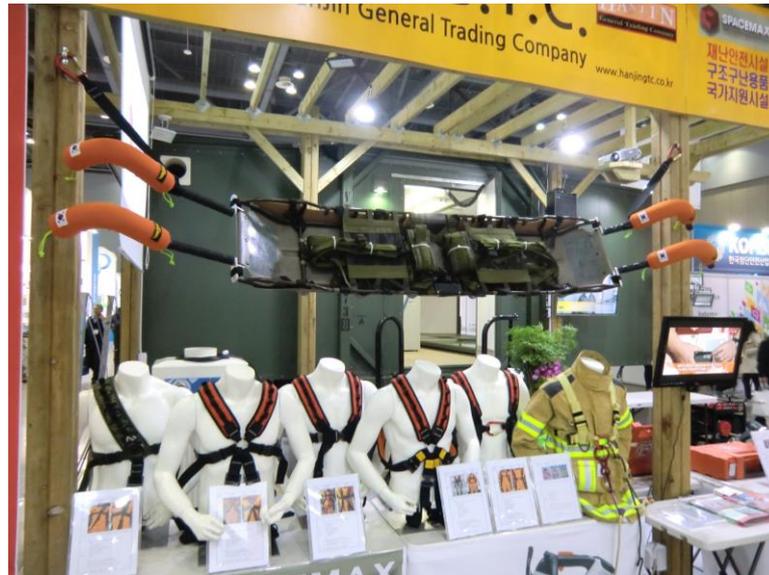




Advanced car communication and information systems presented by Hyundai Motor Co.



Touch free hand motion system managing navigation, communication, child care and more.



Rescue and safety equipment



Robotics playing an ever increasing role also in disaster response and security applications.



Drone technologies increasingly important in surveillance and rescue.





Training friendly solutions for mass casualty incident patient handling with hands free patient evacuation equipment.



The Korea International Safety & Security Expo 2015 had a large focus on training the new generations in safety and response. Here young school children testing their firefighting skills.



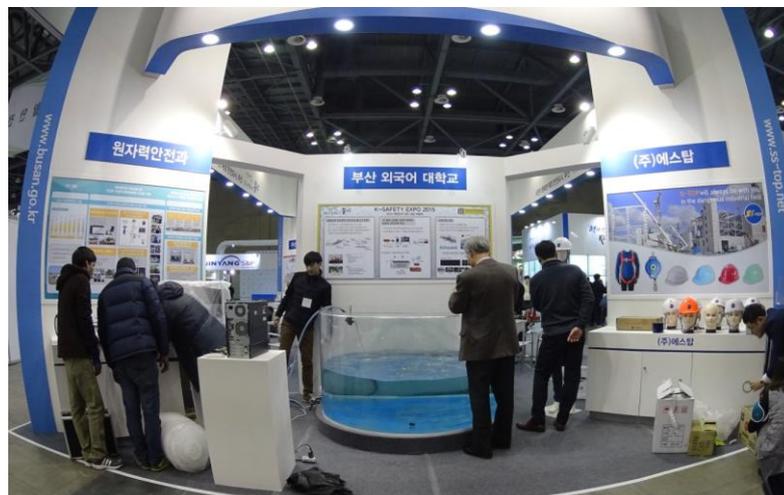
Realistic firefighting and evacuation exercises for school children.



Railway simulator and safety presented by Korea Railroad Corporation KORAIL.



Innovative solutions for water rescue.



Advanced Submarine inspection technologies presented by Busan University of Foreign Studies.

PANDEMICS AND EPIDEMICS SECTION

Conference on Lessons Learned for Public health from the Ebola Outbreak in West Africa

How to improve preparedness and response in the EU for future outbreaks"

**Conference summary report, prepared by DG SANTE
Mondorf les Bains, 12-14 October 2015**

The content of this summary report does not reflect the official opinion of the European Union. Responsibility for the information and views expressed in the summary report lies entirely with their authors.



Background

The Ebola outbreak in 2014 and 2015 in West Africa and the repercussions it had at international level have substantially changed our perception and understanding of global health security. In this context, DG SANTE, together with the Luxembourg Presidency, organised a conference on "lessons learned for public health from the Ebola outbreak in West Africa – how to improve preparedness and response in the EU for future outbreaks".

The event took place in Mondorf-les-Bains (Luxembourg) from Monday 12 October to Wednesday 14 October 2015.

The aim of this conference was to identify learning points arising from the Ebola epidemic which will be crucial to strengthen health security in the European Union, better prepare us for similar crises and put us in the position to respond rapidly, flexibly and effectively to emergencies and disease outbreaks in the future.

The outcomes of the conference will inform Council conclusions to be adopted by the Health Ministers in December 2015. The results will also be incorporated in the report on the lessons learned from Ebola that EU Ebola coordinator and Commissioner, Mr Christos Stylianides, will present to the European Council.

An award ceremony of the 2015 European Health Prize for NGOs followed the opening session.

Subsequently four workshops - run in parallel sessions – analysed:

1. the Ebola outbreak as a complex crisis: the EU response and inter-sectorial cooperation,

2. best practices for treatment and prevention including protection of health care workers, medical evacuation, diagnostic methods and vaccines,
3. communication activities and strategies addressed to the public and health professionals, and
4. the Ebola epidemic from a local challenge to a global health security issue.

Over 350 participants attended, including health authorities and experts from EU Member States, EU bodies, international and non-governmental organisations and projects working in risk and crisis management and communication who have been involved in the response in West Africa as well as in preparedness and response in the EU.

The following report will provide the reader with the main messages of the key speakers as well the recommendations based on the discussions in the four parallel workshops.

Opening session of the conference (Monday 12 October 2015)

The opening session of the conference was chaired by Mr. Martin Seychell, Deputy Director General of DG SANTE (Health and Food Safety).

2.1 Opening speeches

The official opening of this conference included speeches from Mrs Lydia Mutsch, Minister for Health of Luxembourg, Dr Vytenis Andriukaitis, European Commissioner for Health and Food Safety, Mr Christos Stylianides, European Commissioner for Humanitarian Aid and Crisis Management, Dr Margaret Chan, Director General of the World Health Organization and Mr Hermann Gröhe, Minister for Health of Germany.



Mrs Lydia Mutsch welcomed the participants and noted that the Ebola epidemic strikingly demonstrated that health is our most important capital. We need effective, strong and resilient health systems and the health dimension must be taken into account in all policies. Ebola is under control but we need to be vigilant. The cross-sectorial cooperation proved crucial for a strong response and Member States must be prepared for future outbreaks. It was a serious test for Decision 1082/2013/EU which proved its effectiveness. Globally, the WHO must be at the centre of the global response to such epidemics. Minister Mutsch stressed the importance of regular EU coordination meetings which allow decision makers to take informed decisions and welcomed the proofs of solidarity towards the affected countries but also between Member States, notably in the

fields of hospital facilities and airborne repatriation, which have been made over the last months. Global governance on health issues must be revisited and concrete and efficient operational consequences must be drawn with the WHO at the centre of the reform drive. The Luxembourgish Presidency of the Union is willing to push this issue forward and put it high on the political agenda.

Dr Vytenis Andriukaitis expressed his gratitude to the participants. Margaret Chan and he just returned from the G7 health ministers meeting chaired by Mr. Gröhe, where they discussed the outbreak as well as the revision of the IHR and WHO reform. He recalled his visit to Guinea, Sierra Leone and Liberia with Commissioner Stylianides, an experience that left its mark since Ebola was devastating the country and a big blow to the region's development. The Commissioner emphasised one of the lessons he retained from his trip to West Africa: to prevent future outbreaks, we need to help vulnerable countries provide basic healthcare, clean water and sanitation to everybody. When Ebola hit, even the few existing businesses disappeared leaving people living in unsanitary conditions and leaving a catastrophic impact on the social and economic life. He expressed his gratitude to the commitment of dedicated doctors and nurses who stayed in the field and underlined that their experience will be important to prevent future outbreaks. The 2 billion Euros of the EU response to Ebola helped to improve the situation in West Africa. Action was needed to prevent the virus from spreading to Europe, while ensuring evacuation of those carrying the virus. Not many Member States were in a position to treat Ebola. So the Commission activated and mobilised all tools at its disposal— including the Health Security Committee, the ECDC, and the Joint Procurement Agreement. Within the Health Security Committee the network of high security laboratories for diagnosis was activated. ECDC prepared guidance on infection control, transportation and equipment. Common case definitions for Ebola were agreed among Member States, expert workshops on treatment in healthcare settings were convened and the joint procurement mechanism was initiated for personal protective equipment. Exit screening was also organised in affected countries because it is of crucial importance to maintain open lines to air transport.

The first lesson to be kept in mind is preparedness. Member States need to be more alert, more cooperation is needed and more information must be shared. The second lesson is prevention. Complacency is the greatest risk, vigilance must be maintained. Lots of preventable diseases remain a Public Health challenge. The third lesson is promotion. We need to engage people and improve health literacy. Finally, we need to improve coordination and to bring together all players – in particular Humanitarian Aid and Public health sectors and structures need to work together.

Mr Christos Stylianides underlined that the Ebola crisis is now largely under control but that we should not lower our guard. With global population growth and climate change, more epidemics like Ebola may arise in the future and next time the international community needs to be better prepared. As concerns the EU response, there were things that worked well, there were tools that took time to be fully operational but ultimately worked well and lastly there were also areas where the EU could have done better. A total of 2 billion Euros was mobilised from Member States and the Commission for supporting partners like MSF, the Red Cross, as well as the UN and other NGOs, but also for recovery in the three countries and for research into vaccines and treatments. In addition, the EU's Civil Protection Mechanism was activated to assist in getting people and equipment from our Member States to West Africa. The coordination between the Commission, the External Action Service, all our Member States and key operational partners was successful and efficient, with daily meetings of the EU Ebola Task Force. The work of ECDC and of the European mobile laboratories was also much appreciated. The EU's medical evacuation system took some time to be fully operational, but has proved to be very useful. The key challenge now is to keep the

basic elements of this Medevac system in place for future epidemics and for other medical emergencies. Finally, one of the biggest challenges was to rapidly mobilise medical teams. This is why the idea of the "white helmets" idea has been taken up, developing a European Medical Corps as part of the "voluntary pool" of the EU Civil Protection Mechanism. This will allow Member States to make equipment and health personnel available for an immediate collective European response.

Dr Margaret Chan emphasised that the world is still ill-prepared to respond to severe and sustained outbreaks such as Ebola and other air-borne diseases, e.g. pandemic influenza. The International Health Regulations will be central as regard the aim of having robust response and resilient health systems, the IHR are the best way we can invest in preparedness. But also transparency: having the courage to report an outbreak is important in the beginning. The concrete lessons learned: first, compliance with IHR is paramount. While the agreement is signed by 194 countries, only one third have complied. Also, many countries self-assess their capacities positively but independent evaluations show different results, which is why the WHO promotes independent assessments. Second, capacities – health systems must be properly resourced, with staff, equipment, availability of medical countermeasures, etc. Third, community engagement and culture is paramount – we need to invest more time to understand the culture. Coordination is also important – at WHO, at national and sub-national levels. Countries need to take ownership and leadership. Also, risk communication: we need to work with anthropologists so we can communicate with the communities. Finally, research and development must be scaled up for high-impact pathogens and WHO is working on a blueprint. The financing issue should also be considered and WHO needs to be properly financed, to allow long-term certainty.

Mr Hermann Gröhe noted the encouraging evolution of the Ebola cases. Civil society, Doctors without Borders, the UN and affected communities themselves deserve the most salutes. He expressed his thanks to the Commission, in particular DG SANTE and the Health Security Committee and DG ECHO for their contribution, as well as ECDC. Ebola is not defeated yet, we need to push the fight. Efficient and robust health systems are key. By 2019, Germany will make available €600 million available to allow the strengthening of third countries health systems. Full implementation of IHR is crucial. He welcomed the establishment of the European Medical Corps to which Germany is currently putting together its contribution. WHO has a central coordination role to play, WHO must be properly resourced and reformed. Today, the EU is considered relatively well-prepared, but still many things can be improved. G7 sent a strong political signal to strengthen health systems and support IHR implementation.

2.2 Feedback from Ministers

The second part of the opening session allowed other attending Ministers of Health or their representatives to provide feedback from their own lessons learned processes.



Dr Georges Pamboridis, Minister of Health from Cyprus stressed its own greatest lesson learned: never trust a virus and never be complacent. Second: invest in the health system and public health infrastructure. In Cyprus a national response panel was established and an Ebola committee set up. Preparedness and maintenance for a strong system was the main lesson learned. Cyprus partly failed in responding to the calls to put staff on the ground due to being a small country. Cooperation with partners is the only way to respond to such epidemics – constant exchange with the Health Security Committee, ECDC and WHO allowed Cyprus to stay well-informed. Also, the Joint Procurement Agreement is an important instrument for the ability of small countries to access markets for medical countermeasures such as personal protective equipment.

Mrs Jane Ellison, Parliamentary Under Secretary of State for Public Health pointed out that the United Kingdom will stay committed in the on-going response in West Africa until the zero case objectives has been reached. Main lesson learned: we need to act quickly in terms of both response and surveillance. UK is ready to improve its own early warning system. UK is also establishing a rapid response team who will be in permanent stand by to deploy within 48 hours. The global health security depends on accessible medical countermeasures, such as vaccines. The EU mobile laboratories provided crucial capacity; a vital contribution and useful tool to leverage EU's enormous capacities in this respect. The Medevac capability is also important.

Mr Marijan Cesarik, Vice-Minister of Health (Croatia), stressed that as a result of adequate communication with the Commission, Croatia was able to create its own risk assessment and develop procedures for receiving, treating and isolating potential patients. Training and capacity building of medical professionals relied also on ECDC expertise. Even with Ebola no longer in the public eye, it is our obligation to maintain vigilance.

Mr Arvydas Skorupskas, Adviser to the Minister of Health of Lithuania, underlined that the viral disease in West Africa reminded us that communicable diseases do not respect borders. EU was quick in replying and setting up measures in all sectors. For small countries, coordination of preparedness and response was essential. The main lesson: information sharing and rapid risk assessments are essential. Lithuania followed recommendations of WHO, the Commission and ECDC for preparedness and response. Training for health and other sectors were carried out, especially as regards the right use of personal protective equipment.

Mrs Paivi Sillanaukee, Permanent Secretary to the Ministry of Social Affairs and Health (Finland) underlined that another disaster may happen and that we should be prepared. At global level, the IHRs provide a global level commitment but they lack implementation and enforcement. The EU showed great commitment by adopting Decision 1082, now it is important to focus at country level capacity. The EU made progress but more can be done. Communication, cross-sectorial cooperation

and preparedness are important, as is the Medevac capacity. Finland is a strong supporter of the Global Health Security Agenda (GHSA), whose aim it is to support countries in capacity-building to create multi-sectorial responses to crises. GHSA carries out country assessments, which should not be seen as a substitute for IHR assessments but as supporting the implementation of the IHR.

Mrs Christine Fages, Ambassador and co-ordinator of the inter-ministerial Ebola Task Force, Ministry of Foreign Affairs, France, highlighted that the Ebola crisis was unprecedented. We must build on our collaborative model, which should be established and tested before future crises. During the crisis, France played a role in training medical personnel and deploying medical staff on the ground. Inefficient health systems are a threat to health security. We need to invest in national public health systems, including outside times of crisis. Public health is a topic for all stakeholders. It is an investment not a cost. France is organising a high-level conference in Lyon in April 2016 to discuss the IHR reform.

EU Health Award 2015 ceremony

The opening session was followed by the EU Health Award 2015 ceremony. It was chaired by Mr. John F. Ryan, Acting Director of the Public Health Directorate (DG SANTE C).

The EU Health Award aims to highlight and reward initiatives of international, European, national and regional non-governmental organisations which have made a significant contribution to promoting a healthier EU and higher level of public health.

Prizes were given by Vytenis Andriukaitis, European Commissioner for Health and Food Safety, Christos Stylianides, European Commissioner for Humanitarian Aid and Crisis Management and Lydia Mutsch, Health Minister for Luxembourg.

The prize-winners were selected from 26 worthy candidates by an EU Jury, composed of public health specialists and representatives of EU non-governmental bodies chaired by the Commission.

- The first prize of 20.000€ was awarded to the Alliance for International Medical Action (ALIMA), for the initiative “Emergency medical response to the Ebola Virus Disease”. ALIMA’s regional emergency intervention to Ebola resulted in the opening of a 40-bed Ebola Treatment Centre and outreach activities in Guinée Forestière region, infection and prevention control measures in Mali and Senegal, and conducting of a clinical trial on an anti- Ebola treatment with the French National Medical Research Institute INSERM.
- The second prize of 15.000€ was awarded to Concern Worldwide for the initiative, “Safe and Dignified Burials Programme, Freetown, Sierra Leone”. Concern Worldwide is part of a consortium that took over the management of 10 burial teams from the government of Sierra Leone in October 2014. This included the management of two cemeteries, grave digging staff, and transport teams. Concern Worldwide’s



support teams collected over 5,500 deceased bodies from the community and the health facilities. Of these, at least 97% were buried within 24 hours of being reported.

- The third prize of 10.000€ was awarded to the Spanish Red Cross for the initiative “West Africa Ebola outbreak relief operation”. Amongst their many activities, the Spanish Red Cross supported the creation and management of two Ebola treatment centers in Sierra Leone, provided psychosocial support for the population affected by the outbreak, and helped monitor the health of irregular migrants travelling from the affected areas to the EU. They also developed several activities to inform the Spanish population about Ebola and reduce the stigma.

Panel discussions with stakeholders

A panel discussion, chaired by Nick Gent (Public Health England), involving major international key players provided some food for thoughts to the discussions of the two following days.

Dr Andrea Ammon, acting director of the European Centre for Disease Prevention and Control (ECDC), took a stand for preparedness as an extremely cost-effective measure to mitigate the impact of Public Health crises. Preparedness together with country support needs to be addressed on a wide scale and in a coordinated manner. She underlined the discrepancy between self-assessment and external evaluation points (as also mentioned by Dr Chan) towards the need to provide country support, e.g. by assessment visits. She called for a concertation of the visits between WHO, GHSA and ECDC. When replying to a question by the audience who suggested that there is no need for so many current activities on medical workforces she underlined that it is important to build on existing capacities, but that these were insufficient during the Ebola crisis and should therefore be reviewed and where necessary strengthened.

Mr Panu Saaristo, International Federation of Red Cross (Headquarter –Geneva), elaborated on the importance of having a local organisation that is well connected to its public authorities and communities as well as resilience of the health systems in affected countries. Local civil society and national health workers play a major role; any intervention should build on their assets and experience. Moreover, he stressed the importance of caring for doctors and nurses when returning from the field. Some countries refused to take home their own citizens because they lacked capacities to treat them; this undermines the willingness of people going into the field. The Red Cross is assessing its own systems so that resources are deployed with the same agreements, e.g. same insurance schemes and assurances for evacuation.

Ms Hilde de Clerck, Médecins sans Frontières (MSF), gave important insight into the engagement of MSF in affected countries by putting it in a chronological perspective so to outline points in which lessons and the need for improvement became visible. In particular, she expressed appreciation of the cooperation with the European mobile laboratories. She also underlined that the lessons learned from the 1970s Ebola outbreaks remain valid today.

Mr Guillaume Grosso, GAVI-Europe office, elaborated on the severe impact of the Ebola and similar crises on vaccination campaigns in affected countries. Moreover, he stressed that it cannot be taken for granted that there will be access to a vaccine for Ebola, simply because there is no market. The possibility for a vaccine existed for years, but was not taken forward. Peace times also

serve to prepare the medical countermeasures that will be needed. GAVI creates incentives to enable continuous vaccine developments.

Dr Paul De Raeve, European Federation of Nurses Associations (EFN), made a strong call for the engagement of nurses and social workers in policy design to ensure better preparedness in the EU and making sure policies are “fit for practice” to prevent contamination. The fear and concern spreading among the families and friends of nurses caring for Ebola patients was a major concern in some key reference hospitals and the frontline nurses suffered from stigmatisation. Although a manual and some training were developed in the EU based on identified gaps, the guidance for nurses were not deemed fit for reality and there were many uncertainties that put at risk not only the health and safety of the nurses and other professionals but of the citizens at large. There is a strong need for hands-on guidance, efforts to contrast the stigmatisation and social exclusion of nurses who are caring for patients with Ebola. Council conclusions are therefore key as they need to provide political and professional guidance on where we should be in the 28 Member States. Council conclusions need to reflect the real needs of people working in the field and should include actions on training, stakeholders’ engagement and fighting stigmatisation. If not, they stay a theoretical exercise with no impact on fieldwork.

Dr Guenaël Rodier, WHO Regional Office for WHO, paid special attention to the human resource aspects of staff being deployed and working in Ebola affected countries. During Ebola it was particularly difficult at the peak of the epidemic to find French-speaking deployable staff for Guinea; this lack of willingness was aggravated by the tendency of their home countries to retain competences close at hand. Operational difficulties range from language needs to be able to work and communicate efficiently to legal, logistical and security concerns. Legal issues, but also insurance and assurance to deployed staff about practical arrangements, from actual terms of reference, level of accommodation, precise site of deployment to medical evacuation, contributed to the delayed in WHO and global response. He called upon volunteers to show the necessary flexibility in order to respond so such situations. It is also difficult to preview how staff reacts when facing both the epidemic and the context of working in resource-poor African countries. He thanked ECDC for their contribution through staff, EPIET/EUPHEM fellows and experts from institutions of EU Member States.

Professor Paul Cosford, Public Health England, stressed that during an ongoing crisis efficient communication with the public is key, to address fears and misinformation. Moreover, it serves to keep public and political confidence up and to justify continued engagement directly in affected countries. Another pillar to reassure the public is thorough risk assessment and if possible a quantitative estimate of the risk.

Ms Barbara Bentein, UNICEF, gave the perspective from a childcare point of view and with regards to the collapse of basic care during Ebola. She underlined that this kind of health crisis requires a cross-sectorial, multi-disciplinary response, ensuring that all actors work together is very important. Moreover, she stressed the criticality of community ownership and engagement, support from anthropologists and social scientists. The speed of information flow, data protection legislation and declaration of public health emergencies of international concern (PHEIC) have been major obstacles for a faster and more effective response.

Dr Nicole Lurie, Assistant Secretary for Preparedness and Response at the U.S. Department of Health and Human Services, shared aspects of response from the Global Health Security Initiative (GHSI) perspective. From the US perspective, it has worked as a forum for open and constructive mutual support, also for information sharing on a nearly weekly basis and problem solving. She also stressed the importance of prioritising research areas and scientific questions that need to be answered in these contexts. Moreover, she underlined the importance for efficient cooperation with regulatory authorities in order to support efficient trials and rapid access to medical countermeasures.



Main conclusions from the 4 workshops

The second and third days (morning) were dedicated to workshops' discussions.

- The aim of the **workshop 1** was to allow participants to discuss the main issues which contributed to make the Ebola outbreak in West Africa a 'complex emergency situation' or a 'complex crisis' and to agree on main messages indicating areas which deserve special attention to improve the EU public health response in case of a similar future event.

- The aim of the **workshop 2** was to allow participants to exchange good practices and discuss lessons learned related to pre-clinical management, clinical management and Ebola research response.
- The aim of **workshop 3** was to highlight areas for development in the EU's Emergency Risk Communications procedures in response to future outbreaks.
- **Workshop 4** invited participants to consider the EU preparedness and response planning as part of global health security in the context of the Ebola outbreak in West Africa. It focused on issues that could improve the EU public health preparedness and response should a similar outbreak occur in the future.

Workshop 1: The Ebola outbreak as a complex crisis: the EU response and inter-sectorial cooperation.

Overall considerations

The Ebola epidemic showed the need to be better prepared in order to face efficiently the next major health emergency. Elements such as coordination, risk assessment processes and intersectoral cooperation are paramount for a good preparedness planning.

Issues related to risk assessment of the situation during the early phase of the outbreak and how the assessment and its impact evolved until the declaration by the WHO Director General of the Ebola outbreak a public health emergency of international concern need to be better analysed. This concerns in particular how the information was received internationally, including the impact it had in terms of organization of the response in the early phase of the outbreak. Identifying gaps and strengths in this early phase, underlining the main elements of complexity of the situation, is instrumental for a better preparedness.

A better understanding of the coordination mechanism in place as from the declaration of the outbreak as a public health emergency of international concern is also needed. It is important to grasp how the new legislation in place on serious cross-border threats to health (Decision 1082/2013/EU) has been instrumental in supporting the risk management and the coordination of the response at EU level. This includes the role of the Health Security Committee formally established under the Decision.

The Ebola epidemic has resulted in the interaction between public health, humanitarian aid, civil protection and development and cooperation sectors. Identifying and understanding the main challenges to cooperation among sectors is paramount. These aspects include the need of working beyond the EU borders in close



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cooperation with third countries, non-governmental organisations, international bodies and the private sectors.

The Ebola outbreak also highlighted the need for action in areas which usually do not always get sufficient attention, such as border issues (exit and entry screening), medical evacuation, the mobilisation of specific expertise for EU and the affected countries, transport facilities for big amount of waste related to the laboratory and clinical activities in the EU, the sample sharing and contact tracing.

Recommendations for action

- Risk assessments should include scenarios (which should take into account knowledge, attitudes and practices in the affected countries) that can help EU and its Member States to translate the message into preparedness actions and response.
- A peer-review mechanism could help Member States to improve their national preparedness plans taking into account past and current initiatives on independent country evaluations on global and regional level.
- Implementation of Decision 1082/2013/EU Art 17 on the coordination of the Health Security Committee should contribute to a stronger decision making and to a reinforced strategic response.
- The Joint procurement agreement needs to be further developed and mechanisms for effective use and training during an on-going emergency situation need to be explored.
- Training and exercises should be emphasized as a key mechanism, e.g. for effective deployment in the field.
- Strategic leadership and response coordination are required from the earliest stage of the crisis in each MS, at EU level and globally (WHO, UN).
- The EU should contribute to clarifying and strengthening mandates within the global response architecture (WHO, UN institution) and at EU level. There is also a need to clarify mandates at Member States level.
- The response coordination needs to be truly inter-sectoral including civil-military collaboration and all inclusive (all hazard approach, all stakeholders, and at field level).
- The early targeting of resources and funding as well as consequent transparent tracking thereof should be improved.
- National ownership by affected countries should remain paramount as concerns response coordination.
- Lessons learned from previous incidents should be implemented.

Health Security Committee to
reinforce the strategic
response
Intersectoral response
coordination mechanism
Effective use of the joint
procurement agreement

Workshop 2: Best practices for treatment and prevention including protection of health care workers, medical evacuation, diagnostic methods and vaccines.

Overall considerations

The Ebola outbreak also created a lot of challenges in area such as the transport and medical evacuation of people suspected or confirmed with Ebola, as well as the protection of health care workers, hospital preparedness, treatment approaches and availability of treatments and adequate material such as personal protective equipment.

Research and pharmaceutical industries were heavily involved in identifying, developing and testing new treatments and vaccines.

This workshop tried to answer the numerous issues underlined above, and consequently suscitated the numerous recommendations listed below.



Recommendations for action

- **Transport of people with confirmed or suspected infectious disease of high impact (IDHI)**
 - Airborne Medevac is one core mechanism for safeguarding health and safety of European citizens and healthcare workers deployed outside Europe to emergencies caused by any IDHI. Therefore, it is important that EU solutions are put in place, in order to offer reliable solutions for medical evacuation to workers deployed as part of the European response to emergencies.
 - State of the art capacity for airborne Medevac and ground transportation in Europe requires a shared and long-term financial engagement of countries and international institutions.
 - Operational ground transport systems are essential for integration with air-transport and for exploiting cross-border European treatment capacities for IDHI.
 - State of the art capacity for airborne Medevac and ground transportation in Europe means a 24/7 capability to safely transfer any patient whatever their clinical condition including patients with airborne transmissible IDHI.
 - An inventory of European capabilities and intra-operability for air and ground transport (including staffing) should be established and maintained.
 - Regulatory and financial aspects of cross-border transport of IDHI patients within Europe need to be addressed in advance.
- **Staff protection for IDHI in European healthcare settings**

Long term financial engagement for Medevac and hospital preparedness needed

- Building staff capacities for caring and management of patients with IDHI means implementing and strengthening of existing occupational safety and health regulations.
- Efforts in establishing common standards for specifications and use of PPE within Europe should be intensified by engaging nurses who are operational in the field. This starts with a coordinated procurement of PPE components among Member States.
- Procuring appropriate PPE and providing regular training makes nursing staff comfortable and confident in treatment settings for IDHI. This asset needs to be protected from shortcuts in hospital-budget or staff-patient ratio.
- Different approaches in use of PPE are not acceptable and therefore should be based upon agreed principles and a rationale by making sure that frontline staff is protected.
- European progress in standardization and procurement of PPE need to interface with international initiatives relevant for global standards and availability of PPE.

Implementation of infection prevention and control standards before emergencies
Intensive care treatment is decisive for the cure of EVD patients

➤ **First assessment of patients with IDHI and infection control**

- Infection prevention and control standards need to be implemented before an emergency from an IDHI occurs. This applies in particular for critical structures such as emergency departments or intensive care units.
- Guidance for initial assessment of persons under investigation for EVD in Europe should be made available for any other IDHI. Such guidance needs to target various working environments in healthcare and also consider options for assessing a large number of possible cases ('triage').

➤ **Hospital preparedness for patients with IDHI in Europe**

- Building and maintaining specialist capacities in hospital preparedness for IDHIs requires a long term funding perspective.
- Procedures for caring and management of patients with an IDHI in hospitals need to be tested regularly with frontline through simulation exercises.
- Complementary Europe-wide exercises are needed to test cross-sectoral and cross-border coordination and cooperation for emergencies from IDHI.
- A European pool of experts from all disciplines involved in the caring and management of patients with IDHI could act as a mobile resource in providing cross-border support wherever needed.

➤ **Current treatment approaches for Viral Hemorrhagic Fever- patients in Europe**

- The ability to provide the full range of intensive care treatment in a high isolation setting is decisive for the outcomes of patients with EVD. EC and Member States should aim to make this standard accessible throughout Europe.

- WHO's clinical peer support network showed to be a key resource for the treatment of medically evacuated patients. The EC and Member States should closely liaise and cooperate with the network to provide support to clinicians in less resourced settings.
- Clinical research for IDHI should be part of the established clinical care protocols and also consider medically evacuated patients.
- Existing European initiatives should work together to further strengthen pan-European capacities to conduct clinical studies of IDHI (including observational, operational, and investigational new drug (IND) trials).
- The EC should invest in clinical research in sites outside Europe where IDHI are occurring to inform patient care both inside and outside of Europe.
- The EC should invest in clinical research in sites inside Europe where IDHI are occurring to fight against stigmatization.

➤ **Vaccines, Medicines, Diagnostics and Personal Protective Equipment**

- The EU should play a central role in ensuring global preparedness through medical counter measures.
 - EU funding bodies should collaborate with other funders of IDHI research through the GLOPID-R, to develop a strategic plan for globally coordinated research and development for IDHI that encompasses inter-epidemic and epidemic clinical epidemiology, vaccine and drug development, diagnostic standardization, and PPE. This plan should cover the whole product development pipeline.
 - The EU contribution should be integrated in the global R&D landscape and should involve industry.
 - Significant public sector investment is needed to realize a Pan-European R&D plan for IDHI.
 - In case of IDHI emergencies the marketing authorisation process is often not feasible due to time constraints. For these cases the regulatory framework allowing for the use of the product and access needs to be defined in protocols specific for IDHI emergencies.
 - EU institutions should support international organisations having a multi-country oversight regarding authorization of trials for IDHI.

Global collaboration and
funding in research needed

➤ **Lessons learned on research response**

- Establish in advance legal, regulatory, and organizational frameworks to resolve issues of intellectual property (IP) ownership, access/pricing and mass deployment.
- Establish in advance legal, regulatory, and governance frameworks for bio-banking and facilitate access to pathogen and patient samples for all qualified researchers.

- The BSL 4 laboratory network should be supported as an integral component of the European response to IDHI within and outside of Europe.

Workshop 3: Communication activities and strategies addressed to the public and health professionals.

Overall considerations

The dynamic of the Ebola crisis and the multi-sectorial response generated challenges as well as opportunities for communicating with internal and external target audiences - such as the public; at risk groups; governments and responding organisations – in affected countries, globally and at a European level.

The following conclusions were agreed to be relevant for the future Emergency Risk Communications (ERC) preparedness and response in relation to any emerging and infectious pathogen with pandemic potential

As a pre-condition, the Health Security Committee (HSC) communicators' network needs to be operational and active. EU Member States and EEA Member states should be actively encouraged to contribute to the network activities.



Recommendations for action

- Emergency Risk Communication is an integral part of any emergency response and crucial to its management and coordination. Communications planning and training need to be embedded in all preparedness and response programmes. Preparedness activities should include preplanning for various levels and types of public health emergencies and sharing these ahead of identified threats. A “communication warning system” notifying communicators about possible communication challenges should be set up.
- The European Commission plays a crucial role in reassuring the public that the EU is acting in a coherent and coordinated manner, with due respect to national competencies.
- Information and communications activities and materials as well as lessons learned for EU countries in any major health emergency should be coordinated at EU level. A coordination mechanism at EU level should include: 1) a password protected central common operating platform for shared communication products and messaging, 2) the development of ERC guidance and standard operating procedures as well as training and exercises on these guidelines and procedures, 3) the exchange of communication strategies and messages (if possible prior to release) 4) the sharing of intelligence about risk groups identified in each Member State, 5) the sharing of the results of focus group and other research activities on public perception, 6) the sharing of evaluations and lessons learned outcomes, 7) the availability of a central and publicly accessible platform (linking original websites of Member States and involved organisations) for the sharing of information relevant to all aspects of the emergency, and 8) the evaluation of communication messages and strategies.
- Member States communications staff from Health Ministries /health agencies should support the European Commission in these efforts.

- The framework for health communications between EU/EEA Member States and the European Commission is the Health Security Committee's Communicators' Network (HSC ComNet). During the Ebola outbreak in West Africa, the European Commission organised Task Force Meetings and Health Security Committee meetings as efficient platforms for information sharing.
- Other organizations' networks such as those of the Global Health Security Initiative (GHSI) and the World Health Organization (WHO) can also play a key role in exchanging information. All networks need to be connected and all the relevant partners need to be included in the exchanges from the beginning of an emergency. A mapping of these international networks is required.
- The timely development of communication materials is paramount for maximising resources to reach the public and other more specific target groups. Sharing materials and templates among partners and stakeholders helps to communicate early and coherently. EU/EEA Member States and the European Commission should work together to identify ways to share information and activities proactively, effectively and efficiently and to build on existing ERC publications. Products and messages should be sharable without copyright restrictions. This may require the development of common sharing agreements between EU/EEA Member States and the European Commission.
- Setting up a central repository of all communication materials (from international partners, agencies and national authorities) is recommended.
- Possibilities for joint communications between EU/EEA Member States, the EU, civil society and key stakeholders (such as NGOs and health professionals' organisations) to more systematically communicate have to be explored.
- The European Commission should provide and maintain a password protected platform for aggregating communications material from the existing sources. This secured file sharing system should also allow for the consistency and alignment of messages and needs to include the early sharing of approved lines to take, of infographs, of questions/answers, of messages and any other relevant communications material. It should allow for national customisation.
- Coordinating joint communications activities at the national and EU level should include engagement with stakeholders such as the civil society, relevant sectors, and partner agencies including but not limited to WHO, the European Centre for Disease Prevention and Control (ECDC), the European Food Safety Authority (EFSA), the European Medicine Agency (EMA).
- It is important to understand the perceptions, knowledge and behaviours of European citizens during a health crisis and the differences across segments of the population and countries. Failure to do so can lead to wasted resources, and unanticipated consequences such as spreading fear and loss of trust in the authorities. Qualitative data, polls and surveys are essential tools for achieving this understanding. These can be supplemented by analysis of traditional media, social media and online comments. Rapid analysis of such data will

Health Security Committee
Communicators' network fully
operational and active
Emergency Risk Communication; an
integral part of any emergency
response
Consider deployment of trained
communication experts to affected
countries

help communicators to identify gaps in knowledge and cultural barriers as well as false rumours, and thereby assist in crafting appropriate ERC strategies. This should include trusted messengers. The strategy should be subjected to evaluation and results should be shared with all stakeholders as necessary to refine the strategy.

- A plan for evaluating the impact of ERC strategies must be established before an emergency and conducted during and after the crisis. The data collection methods, the models and the results should be shared between countries as a source of information and exchange of good practices. EU/EEA Member States should share the findings from the evaluation with the European Commission and each other.
- A timely and multi-channel strategy, which includes digital technology, is required to ensure effective communications with target audiences. Toll-free telephone lines, SMS messaging, social media (Web 2.0) channels are increasing rapid and accessible and will offer new possibilities for reaching out specific target groups. They also help spotting early warning signs, user behaviours and trends and can help disseminate information about the emergency and public health advice. EU/EEA Member States and the Commission should be encouraged to invest in two way communications tools which will foster an understanding of and response to community concerns. A checklist of channels that communicators can use (e.g. aide memoire so people don't forget radio, faith groups, and posters in community venues) should be developed.
- Face to face access to technical experts for journalists should be developed and encouraged to build trust and to convey information. The identification of trusted messengers is necessary.
- During the Ebola outbreak in West Africa, ERC was not considered to be a major pillar of the response in the EU and the support from the Commission and EU/EEA Member States to affected countries and WHO was not as timely and strong as needed.
 - a) The Commission, EU/EEA Member States, United Nations agencies, non-governmental organisations and other stakeholders should ensure that ERC is brought into the mainstream of the preparedness and response and that communications experts work with their technical/political managers in Europe.
 - b) The EU should consider the deployment of appropriately trained communications experts to the affected countries to support building and/or maintaining trust in the authorities and in public health advice. These experts should not only train local communicators but also learn from them, to ensure that messages and the local response are culturally sensitive. For every team deployed from an organization, there should at least be one communications officer.
- The Ebola outbreak revealed that the Commission and some national Health authorities lack the rapid access to budgets for communication during a crisis and that the contractual procedures are too complex and cumbersome to produce communication material - such as videos - at short notice. Rapid procurement processes should be put in place at the EU and or national levels so that in case of a public health emergency, a responsive and effective allocation of resources can be facilitated.

Workshop 4: The Ebola epidemic from a local challenge to a global health security issue.

Overall considerations

The unprecedented outbreak of Ebola virus disease (EVD) in West Africa demonstrated the need for a robust preparedness and response planning within all countries. The main countries affected by the EVD outbreak had little or no preparedness and response planning. EU Member States with demonstrable preparedness and response mechanisms were able to meet the challenges of dealing with large numbers of aid workers returning and those repatriated with Ebola or symptoms consistent with Ebola.

While preparedness at country level is very important, in order to enable immediate response when a public health threat occurs, preparedness has to also be strengthened at European and global level to support those countries facing threats that they cannot deal with alone.



The lessons learned from the Ebola outbreak should be further considered when reviewing future preparedness and response arrangements in relation to outbreaks of emerging and re-emerging pathogens and with the potential to cause pandemics or creating a requirement for WHO to alert the global public health community. An IHR Emergency Committee should be convened even before declaring a Public Health Event of International Concern as provided for in the International Health Regulations 2005.

The development of innovative mechanisms for managing clinical cases of Viral Haemorrhagic Fevers and other aetiological agents with outbreak potential is vital. Best practices such as training and exercising of appropriate teams and individuals, and their implementation need to be developed during non-outbreak periods.

Recommendations for action

- Capacities and the use of IHR at local and regional level should be strengthened and leadership provided.
- The work of local and regional actors and European assistance should be coordinated.
- Preparedness inside the EU also needs to be strengthened, including through specific manuals and training protocols for clinical staff for Ebola or other pathogens.
- The EU capacity to prepare and respond to emergencies with public health implications should be strengthened by operationalising the European Medical Corps, as part of the European Emergency Response Capacity under the EU Civil Protection Mechanism, and of the Global Health Emergency Workforce.
 - Investing in further developing emergency medical teams, in line with the WHO classification, and making them available for international operations;
 - Developing public health preparedness, assessment, response and recovery teams, in order to contribute to IHR implementation;
 - Strengthening the international role of the ECDC in line with its mandate in support of preparedness and response to disasters and public health threats;
 - Supporting mobile biosafety laboratory capacities and their cross-border and international deployment, by building on the EMLab and other experiences;

- Developing requirements, training and certification procedures for above teams and experts, and ensuring their swift deployment;
 - Addressing issues linked to legal and administrative barriers to the deployment of experts and teams, security, insurance, logistical support, medical evacuation, and facilitation of the deployment of international responders by host countries (i.e. recognition of the right to practice, work methods);
 - Looking into issues linked to the sustainable provision of clean water and sanitation services, environmental and food safety mobile laboratories in collaboration with other service providers, etc.;
 - Identifying capacity gaps and goals for the assets in the European Medical Corps;
 - Engaging with the wider humanitarian and public health communities and strengthening the existing global coordination mechanisms within the Global Health Emergency Workforce including the Global Health Cluster, Emergency Medical Teams and Global Outbreak Alert and Response Network;
 - Welcoming the commitments made by Belgium (mobile biosafety laboratory), Luxembourg (Advanced medical post), the Czech Republic (advanced medical post), Sweden (Technical assistance and support team) and the Netherlands (Technical assistance and support team) to the European Medical Corps, and encouraging other MS to consider further commitments in order to make the European Medical Corps fully effective.
- The innovations achieved for Ebola towards a smarter, more scalable and sustainable response should be built up and sustained.
 - Cooperation between public health and development aid partners and other key actors at various levels should be enhanced to better coordinate and integrate public health considerations in resilience building and response to emergencies. To this end, common response plans and further joint trainings, exercises, exchange of best practices, cross-sectoral guidelines, should be pursued.
 - The Commission's Emergency Response Coordination Centre should be further developed as an information exchange and coordination platform at EU level in public health crises originating from outside the EU, in close cooperation with the Health Security Committee.
 - Bi- and multilateral mechanisms should be created for mobilising national experts from public health institutes to support the use of the IHR. The use of the European Medical Corps should to this end be explored.
 - Health Systems should be strengthened towards resilient systems to include core capacities for IHR implementation reinforcing epidemiological surveillance for all countries.
 - The EU should commit to strategic health aid programming in countries falling below the minimum public financing necessary to achieve Sustainable Development Goals and to mitigate the risks of disease outbreaks. As a matter of urgency, effective EU interaction

**Strengthen and operationalize the
 EU medical corps
 Global governance and
 coordination mechanisms based on
 the WHO framework
 Strengthen exit screening through
 setting up of a European
 operational network and training**

between Council bodies for health and foreign affairs should be encouraged to engage in a process in this sense.

- Evidence based capacity development in preparedness and response should be generated and supported. The WHO should be assisted towards an operational approach for preparedness reinforcing public health.
- In fragile state and humanitarian crisis contexts, the main health actors are often humanitarian agencies. Consequently, improved global health governance should ensure both a timely application of EU humanitarian and related resources in global outbreak response, and the inter-operability of these resources with the humanitarian health response.
- Exit screening practices should be strengthened through setting up of an EU operational network and training.
- Operational arrangements should be developed and maintained, including European Medical Corps to support national public health measures at points of entry and engage with other sectors involved in crisis response.
- A global governance and coordination mechanism based on the WHO framework such as the Global Research Collaboration for Infectious Disease Preparedness should be established. This should include:
 - Establishing close links with public health stakeholders with a view to prioritisation;
 - Mapping ongoing research, identifying research (capacity) gaps, and setting out R&D priorities;
 - Facilitating and coordinating the implementation of preparedness research programmes;
 - Ensuring the interaction and linkage of all sectors in the development of clinical trials and their outcomes.
- The variety of funding instruments to ensure funding of the Infectious Diseases of High Impact (IDHI) research pipeline should be used.
- The global capacity for preparedness research should be strengthened, for example through the European and Developing Countries Clinical Trials Partnership.

Concluding session

During the closing session, chaired by Mr John F. Ryan, Acting Director of the Public Health Directorate (DG SANTE C), rapporteurs from the four workshops provided the main recommendations and conclusions of their working groups to the plenary. In addition distinguished representatives from the Presidency, the Commission and Chatham House draw their conclusions. A summary of these speeches is provided below.



Dr Elizabeth Heisbourg, Deputy Director at the Luxembourg Ministry of Health, underlined that the conference was a unique exercise gathering a broad range of stakeholders, including those who were directly involved in the management of the Ebola crisis. She stressed the importance of taking into account the voice of the NGOs which managed the crisis. Dr Heisbourg further summarised the most important conclusions from different speakers pointing out the need to work harder in the fields of communication, risk assessment and response capacities as well as preparedness. It is of vital importance to support intersectoral cooperation and to maintain the capacities built up. She recalled the conference organised under the Belgian Presidency in 2010 after which the Ministers of health adopted the conclusions related to the 2009 influenza pandemic H1N1. She stated that the Ebola epidemic showed again the crucial role of risk communication for cross-border health threats. Subsequently, Dr Heisbourg underlined the key role of the Health Security Committee in the risk assessment, risk management and dissemination of information. The role of the ECDC should not be neglected as it provided epidemiological updates. She stressed the need to build on the lessons learned from the Ebola crisis for which the conference provided an excellent basis for the Council conclusions which will be adopted in December. The whole exercise should contribute

Jean-Louis de Brouwer: Director of Operations at the European Commission, Directorate General for Humanitarian Aid and Civil Protection, called for the implementation of the lessons learned into concrete actions. Regarding the EU framework, some of the measures taken were efficient and therefore should be maintained and sustained for future use. An example is the medical evacuation system which the Commission has now the experience to use effectively but it is an expensive tool to maintain on permanent standby and therefore needs to be made ‘resuscitable’ for future crises. He highlighted the work being done on establishing such systems as part of a future European Medical Corps and emphasised the impressive commitment of all stakeholders to work further on these positive lessons. Mr. De Brouwer stressed that needs assessments at an early stage of an outbreak are essential, pointing out that the EU should have its own assessment capacities. The visibility of the Commission’s actions should be improved by ensuring better coordinated communication within the Commission Services but also with the Member States and the international organizations. On the issue of the Global Response Architecture, the Commission acknowledges the leading role of WHO and supports its reform in order to become fit for purpose. Close cooperation with the Member States on this issue must be ensured. He mentioned the sound practice that was adopted by some Member States of appointing an Ebola ambassador, a person who coordinated actions and communicated updates to interested parties; which helped to save time and avoid confusion. Finally he stressed that the Commission needs to play a leading role in the process of

helping affected countries to improve their epidemic surveillance and response capacity, notably by contributing to building better and stronger health systems.

Dr David Heymann, Head of the Centre on Global Health Security at Chatham House and Professor at the London School of Hygiene and Tropical Medicine delivered the presentation on the shifting paradigm from rapid detection and response to prevention. Dr Heymann recalled the history of the Ebola virus and its modes of transmission from the 1970's until the most recent Ebola crisis.

He elaborated on the three strategies that can rapidly stop the spread of the virus:

- Patient identification, isolation and protection of health workers/infection control
- Surveillance/contact tracing and fever surveillance with rapid diagnosis and isolation
- Community understanding with safe patient and body transport systems, safe burial and household/environmental decontamination.

Until 2014, rapid detection and rapid response were the two key tools which prevented the Ebola virus to turn into an epidemic. An analytical description of the last Ebola epidemic was presented regarding the affected areas, epidemiology of the virus and patterns it followed. He further referred to the development of the vaccines against Ebola that proved to be effective. Therefore the research on vaccine testing should continue. Dr Heymann underlined the crucial role of the joint communication. In addition he underlined the concept of 'One Health' which remains a veterinary concept but is gradually taking hold in human health. There is also need for joint efforts and better coordination between Ministries of Health and Ministries of Agriculture in order to tackle a large crisis such as the Ebola virus.

In order to prevent Ebola outbreaks and its international spread, the health facility infection control and knowledge/skills should be strengthened to prevent amplification; communities should be engaged in understanding risks through the traditional channels as well as through NGO networks. Last but not least, public health capacities should be reinforced to rapidly detect and respond to a crisis.

He pointed out that in order to prevent future importation of emerging infections in Europe we should:

- support rapid outbreak detection, risk assessment and response through WHO through the Global Outbreak Alert and Response Network (GOARN);
- support capacity building in developing countries;
- maintain core capacities, including infection control, within Europe;
- support research and development of vaccine and diagnostic platforms that can accept antigens from newly merged infections as well as to stimulate research and development of new antimicrobials;
- continue to strengthen a one health approach – activity at the animal/human interface.

Mr Xavier Prats Monné, Director General for Health and Food Safety in the Commission, highlighted that the Ebola epidemic was a wake-up call. He reiterated the need to strengthen health systems in countries most in need but also underlined that Ebola has implications on the public health field in the European context as well. Health is the competence of Member States. The Commission has a limited but significant role to support Member States. The EU can provide added value in a number of areas. The first pillar to provide support to Member States is preparedness; the

main instrument to take forward preparedness and response planning at EU level is Decision 1082/2013/EU on serious cross-border threats to health. It is the Commission's task to support the Member States through the Health Security Committee; the ways of providing such support must be explored further and capacity building should be improved to better enable preparation for crisis. With the help of the HSC the Commission will stay committed to identify existing gaps. Peer reviewed assessments of capacities could be tested through simulation exercises which could be conducted in collaboration with WHO and ECDC. The second pillar is cross-sectoral cooperation within the Commission Services as well as with third parties. Large exercises will take place in 2016 and they should be better used. The third one refers to networks and communication. Proper and efficient communication, networking with the MS and joint work with the WHO are the key elements. During a crisis the EU should not be isolated; instead collaboration with the WHO as health emergency manager is essential. The Commission supports the WHO's efforts to strengthen international governance of the International Health Regulations. The question should be posed: will we be ready to face a new infectious disease/epidemic in the imminent future? Mr Prats Monné confirmed that the Commission officials are committed and ready to support the Member States.

Next steps

Mr John F. Ryan underlined that the recommendations made during the conference will inform conclusions of the December Health Council. The results will also be incorporated in the report on the lessons learned from Ebola that EU Ebola coordinator and Commissioner, Mr Christos Stylianides, will present to the European Council.

These recommendations will pave the way for preparedness activities in the coming years both at EU and national levels.



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Project ASSET Report

The context

During the history of the human beings, the 2009 H1N1 influenza pandemic was probably the first pandemic for which many western countries prepared extensive and well-structured response plans, including relevant communication strategies. Worldwide, following the recommendations of international organizations, manufacturers raced against time to produce vaccines, and governments, policy makers and researchers underwent initiatives to prevent alarming societal effects.

Despite this large resources mobilization, a climate of distrust went taking place among the European citizens regarding official information sources such as health professionals, national health authorities, European authorities, media – TV, radio and newspapers, internet and, consequently, a condition of vulnerability of the society towards health threatening emergencies like pandemics.

This phenomenon, still present and common to all EU member states, may jeopardize the current initiatives aimed at building preparedness and response capacity of the European society for the next pandemic or global emergencies.

To build a more resilient society able to tackle such emergencies it is of paramount importance to create conditions of co-operation between stakeholders, decision makers, health professionals, scientists and on the other side the citizens.

For that purpose during recent years, the European Commission has been promoting and operating different approaches, particularly the “Science in Society - SiS” (FP7) of which “greatest impact has been to raise the political importance of science in society, raising awareness of the problems and the need for all actors to work together- but also- enhancing the understanding of the nature of problems”¹. Furthermore, with the framework of Responsible Research and Innovation (RRI), two-way communication channels were promoted aiming to the ‘scientific citizenship’, consisting of “the active and knowledge-driven participation of citizens to democratic processes, including agenda setting, information gathering, co-creation and evaluation”². Consequently, a particular project approach called Mobilization and Mutual Learning (MML) Action Plan, was promoted to create potentially useful co-operation conditions between the scientific community, policymakers, citizen and their stakeholders. Finally, “the MML provides an effective model for enhanced integration of stakeholders in European research”³.

The ASSET project

Among these project there is ASSET (Action plan in Science in Society in Epidemics and Total pandemics), a 48 month Mobilization and Mutual Learning Action Plan (MMLAP), which was funded by the European Union’s Seventh Framework Program, with a planned starting date in 2014, January 1st.

The ASSET consortium is given the mandate to contribute in tackling the state of uncertainty and confusion characterizing the official communication during the last pandemic that has been recognized as a major risk factor affecting trust between citizens and decision makers and scientific community.

The overall objective of ASSET is therefore to contribute to incorporating Science in Society issues (public engagement, ethics, gender perspectives, science education, communication and access to

¹ Stroyan J, Simmonds P, Neil Brown N et al., 2012

² Castellani T, 2014

³ Stroyan J, Simmonds P, Neil Brown N et al., 2012

and dissemination of scientific information) into the system of Research and Innovation related to pandemic preparedness.

Fourteen partners from 11 different Countries (Belgium, Bulgaria, Denmark, France, Greece, Ireland, Israel, Italy, Norway, Romania, Switzerland) constituted a real interdisciplinary consortium, combining together expertise in public health, vaccine and epidemiological research, social and political sciences, law and ethics, gender studies, science communication and media, in order to develop an integrated and transdisciplinary strategy, which will take place combining local, regional and national levels.

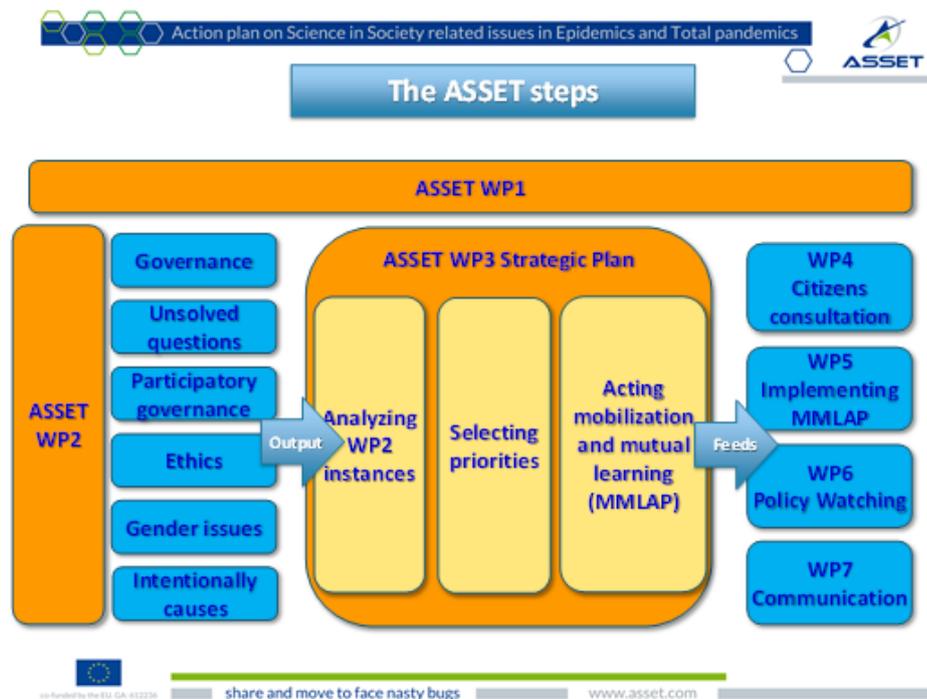
ASSET objectives

According to the goal and the strategy of SiS and following the final report recommendations (2012) of the Expert Group on Science, H1N1 and Society (related research questions raised by the H1N1 pandemic and associated crisis management), 4 main objectives were set up:

- 1) forge a partnership with complementary perspectives, knowledge and experiences to address effectively scientific and societal challenges raised by pandemics and associated crisis management;
- 2) explore and map SiS-related issues in global pandemics;
- 3) define and test a participatory and inclusive strategy to succeed tackling a potential new emergency;
- 4) identify necessary resources to make sustainable the action after the project completion.

Project development (see draft in Figure 1)

The first phase focuses on the constitution of a sound partnership and, given the elevated number of consortium partners, of an effective approach to the internal communication and mutual understanding (WP1).



The second one (WP2) is expected to provide the baseline knowledge according to the 6 main components of RRI concerning pandemics and global emergencies crisis management (governance, unsolved scientific questions and open access to scientific outcome, participatory governance and

science education, ethics, law and fundamental rights. gender issues and inclusiveness, intentionally caused outbreaks) and will focus on the creation of common approaches and languages in a cooperative, multi-actor, environment. ASSET is building on previous projects, notably from earlier and concurrent MMLAPs. The third phase (WP3), fed by the previous ones, will define and design the strategic and action plans. Needs, Gaps, Objectives, Indicators and Impacts will be defined with the performances they need. It will polarize on the development of citizens' awareness, empowerment and action, by implementing instruments and tools typical of the mobilization and mutual learning approach Central to this phase will be the RRI perspective, including citizen-driven innovation.

The fourth phase (essentially the WP4) will be devoted initially to public consultation while the fifth (WP5, and partially the WP6 and 7) to stakeholder and social media mobilization, mutual learning exercises, policy watch, and external communication. This will include face-to-face and online activities as well as European, national and local initiatives. The last phase (WP 9) will focus legacy while WP8 and 10 (monitoring and evaluation) will encompass all the other WP activities along the entire duration of the project.

Work performed since the beginning of the project and main results achieved so far

The ASSET project implementation, due to administrative difficulties, has started 6 month later (KoM at the end of May, 2014). To recover the delay and to facilitate effective internal communication among the numerous partners, a web based community (ASSET Community of Practice – CoP) was created. Through the CoP and the interactions made available by the web platform, a new glossary, real “common language” within the project partners, was initially designated for use within the ASSET consortium and co-operatively set up to help forging a partnership and promoting the consortium capacity building. Thereafter a broad recognition to make the state of the art on the existing research and studies about pandemics has been carried out according to the 6 main components of RRI (governance, unsolved scientific questions; past experiences of participatory governance; targeted ethical, legal and societal implications; gender issues; the risk of intentionally caused outbreaks). At the end of this process, a transdisciplinary workshop was held to consolidate the reports outcome and to cross fertilise research. For each component a final report was elaborated and the main critical aspects emerged are being considered as priority to be covered with the strategic plan for the following MML activities. Furthermore, the prominent issues emerging from this review will be conveyed in the newly constituted High Level Policy Forum, which brings together European policy-makers, key decision makers in health agencies and civil society organizations, to stimulate at national and regional levels reflection on EU strategic priorities about pandemics. Communication and dissemination are crucial for pandemic preparedness and constitute the essential of the MML action plan. In this sense, after establishing a Communication Plan shared within the ASSET CoP, the project started publishing periodically the Pandemic Preparedness and Response Bulletin and the Research and Innovation Newsletter, the former addressed to the ASSET wider stakeholder community and to relevant public health authorities and policy making institutions and the latter to researchers both in academia and industry. A web portal, multilayer open web infrastructure, has been made available to communicate in 2-ways with general public, media, stakeholders, decision makers, scientific community inside and outside the project. Finally, the Summer School, to foster exchanges on foundational and methodological approaches and contemporary and educational issues in SiS related aspects of Pandemics has been planned and launched for 20 candidates.

Expected final results, potential impact and use (including the socio-economic impact and the wider societal implications of the project so far)

After 18 months of activities, the ASSET project focused on two main objectives to be achieved: 1) define and test a participatory and inclusive strategy to improve bi-lateral communication aimed to

succeed with crisis management, 2) after an accurate review of documents and identification of critical aspects, propose and bring them to the attention of stakeholders, scientific community, decision makers and citizens for improving preparedness and response in pandemics or crisis emergencies.

Potential impact and use of outcomes

By creating and testing MMLAP strategies in different European countries, ASSET is expected to improve participatory governance of research and technological development so as to promote more sustainable and effective approaches to key challenges facing European society for pandemics and emergency management.

Furthermore, ASSET will contribute to further incorporating Science in Society issues by identifying and promote systems capacities to make European citizens (and their representatives) timely informed of the next emergency, helping them to identify trustable and accredited information sources, easing access to correct and timely information, creating channels to enable citizens to ask questions and receive timely answers from government officials and accredited sources. On the other hand, opening discussion forums with the scientific community, stakeholders and decision makers at European, national and regional levels will offer the participants the opportunity to realize what would be the best forms to promote and support such processes.

Within the strategy of MMLAP, the ASSET project is and will (be) developing a large amount of tools and products that are made available progressively in the web portal to different targeted stakeholders. Besides the 6 reports on the state-of-art of the existing studies on pandemics, and their wider societal implications, research and innovation in this area, the glossary will be soon available on the web portal. Beyond the web portal, the Pandemic Preparedness and Response Bulletin and the Research and Innovation Newsletter are sent to a mailing list of over 2,500 international addresses.

Consortium and ASSET website

1. ABISKEY CP (ABSISKEY)	8. NATIONAL CENTER OF INFECTIOUS AND PARASITIC DISEASES (NCIPD)
2. ASSOCIATION LYON BIPOLE (LYONBIPOLE)	9. THE INTERNATIONAL EMERGENCY MANAGEMENT SOCIETY AISBL (TIEMS)
3. EUROPEAN INSTITUTE OF WOMEN'S HEALTH LIMITED – (EIWH)	10. UNIVERSITATEA DE MEDICINA SI FARMACIE 'CAROL DAVILA' DIN BUCURESTI (UMFCD)
4. FONDEN TEKNOLOGIRADET (DBT)	11. UNIVERSITY OF HAIFA (HU)
5. FORSVARETS FORSKNINGINSTITUTT (FFI)	12. ZADIG SRL (ZADIG)
6. INTERNATIONAL PREVENTION RESEARCH INSTITUT-IPRI MANAGEMENT (IPRI)	13. DATA MINING INTERNATIONAL SA (DMI)
7. ISTITUTO SUPERIORE DI SANITA (ISS)	14. INSTITUTE OF PREVENTIVE MEDICINE ENVIRONMENTAL AND OCCUPATIONAL HEALTH (PROLEPSIS)

Administrative Coordinator: Olivier de Bardonnèche

Scientific Coordinator: Alberto Perra

ASSET Website: <http://www.asset-scienceinsociety.eu/>

ASSET Project Brochure

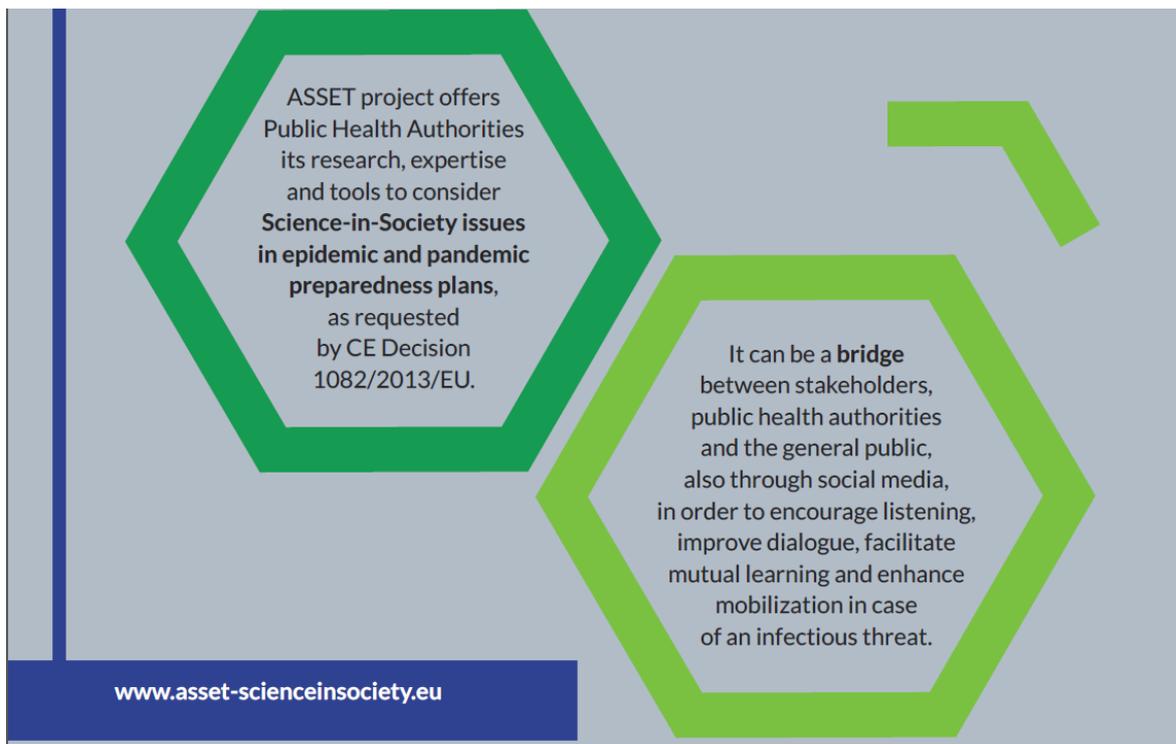


The cover features a world map in the background. On the left, the ASSET logo is displayed with the tagline "share and move to face nasty bugs". Below the logo is the European Union flag and the text "co-funded by the EU". On the right, the title "A RESOURCE IN CASE OF INFECTIOUS THREATS" is written in large, bold, blue capital letters. A stylized green graphic of a person's legs is positioned in the lower right quadrant.

ASSET
share and move to face nasty bugs

co-funded by the EU

**A RESOURCE
IN CASE
OF INFECTIOUS
THREATS**



The content area contains two hexagonal callouts. The left one is dark green and describes the project's offerings to Public Health Authorities. The right one is light green and describes the project's role as a bridge between stakeholders and the public. A dark blue bar at the bottom left contains the website URL. A stylized green graphic of a person's legs is also present in the upper right.

ASSET project offers Public Health Authorities its research, expertise and tools to consider **Science-in-Society** issues in epidemic and pandemic preparedness plans, as requested by CE Decision 1082/2013/EU.

It can be a **bridge** between stakeholders, public health authorities and the general public, also through social media, in order to encourage listening, improve dialogue, facilitate mutual learning and enhance mobilization in case of an infectious threat.

www.asset-scienceinsociety.eu

BACKGROUND

The experience of 2009 A (H1N1) pandemic showed that, despite the efforts made after SARS and bird flu crises, preparedness to epidemic and pandemic threats in European member states was not completely adequate yet.

Preparedness plans lacked of **flexibility** and did not take into account the growing role of **social media** in spreading both information and misinformation.

Gaps in **communication** among different stakeholders, through media to the general public and even within national health systems and supranational health organizations contributed, along with other factors, to creating a dangerous, and still persisting nowadays, **lack of trust**.

ASSET project

The “main challenge was in dealing with the perception and communication of risks. In future, those involved in risk communication need to develop ways of **better involving the scientific community and civil society**”*.

This is exactly the final aim of ASSET (Action plan in Science in Society in Epidemics and Total pandemics), a EU funded, 48 month Mobilisation and Mutual Learning Action Plan (MMLAP) project. It combines public health, vaccine

and epidemiological research, social and political sciences, law and ethics, gender studies, science communication and media, in order to develop an **integrated, transdisciplinary, strategy** for pandemic and epidemic preparedness at local, regional and national levels.

Such a strategy, that will be resumed into the **ASSET Action Plan**, cannot be adequately defined without a **cooperation and an exchange of view with public health authorities**.

*European Centre for Disease Prevention and Control. The 2009 A(H1N1) pandemic in Europe. Stockholm: ECDC; 2010.

ASSET has to listen to public health authorities in order to understand their research needs and to know about real challenges emerging on the field.

On the other hand, it can offer different and new perspectives on the issue.

CE Decision 1082/2013/EU

According to CE Decision 1082/2013/EU on serious cross-border threats to health, "inconsistent or confusing communication with the public and stakeholders such as healthcare professionals can have a negative impact on the effectiveness of the response from a public health perspective as well as on economic operators".

According to the decision, every three years all MS must provide the Commission with an update on the latest situation with regard to their preparedness and response planning at national level, in an intersectoral dimension.

ASSET project provides **research, experiences, proposals and tools** that could be useful to incorporate Science-in-Society issues into these plans.



RESEARCH

ASSET research on **communication and other Science-in-Society issues** is available to public health authorities, media and other stakeholders involved in infectious outbreak-related emergencies.

ASSET takes up the torch from **TELL ME** (Transparent communication in Epidemics project: Learning Lessons from experience, delivering effective Messages, providing Evidence). TELL ME was a 36 month EU co-funded collaborative project, which aimed to provide evidence and to develop models for improved risk communication during infectious disease crises.
<http://www.tellmeproject.eu/>

Both projects focus on communication, notably by **new social media**, and explore **ethics and human rights** in infectious outbreaks, including gender issues.

As the **ebola crisis** has recently shown, these factors, such as those related to **stigma and discrimination**, need to be considered when preparing national and transnational emergency plans towards infectious threats, not only as a matter of principle, but also because they can have a great impact on the spread of the disease.

ASSET project





Related documents are available which could be included, kept in account or give some suggestions in drawing preparedness plans:

TELL ME main documents

- Human behaviour in epidemics
- Components of outbreak communication
- Vaccine acceptance
- New social media
- Narrative and urban myths
- Human rights and stigmatization

ASSET main documents

- Crisis participatory governance report
- Ethics, law and fundamental rights
- Gender issues
- Intentionally caused outbreaks
- A Reference guide on unsolved scientific questions



EXPERIENCES

Communication studies have made clear that **risk and/or outbreak communication** is not only about providing information on the disease and on how to face it. A one-way top-down communication has proved to be ineffective, prone to create untrust and let rumours going on.

Therefore, public health authorities need a two-way communication with all the different stakeholders and the general public, listening to their beliefs, perceptions and attitudes before conveying them any message.

For this purpose, ASSET can provide:

- An algorithm developed between TELL ME and ASSET projects, which allows an innovative way of **Twitter analysis**, in order to identify different categories of "influencers". This was included among the most interesting outcomes of European research in ebola crisis. Asset is now ready to use it, with appropriate keywords, on the issues related to the project.

- The results of ASSET project **transnational citizens' consultations**. These will be held with simultaneous national face-to-face 1-day meetings with a web-based framework for transnational comparison of the national results. The method delivers a transnational overview of how citizens in the involved countries answer a set of pre-defined questions, and which messages they want themselves to send to policy-makers. Citizen meetings with around 50 people each will be held in

8 of the partner countries (Denmark, Italy, Ireland, Switzerland, France, Bulgaria, Romania, Norway).

Suggestions by the Health Security Committee and by national public health authorities for issues to be dealt with and questions to be asked within such consultations are very welcome in this phase.

- Other activities within the project aim to involve stakeholders and the general public through different interventions in schools, cultural events and so on.

At the end of the project, all the results of this dialogue will be shared, providing useful information about perceptions, attitudes and beliefs of European citizens towards infectious outbreaks emergency, antivirals and vaccines.

PROPOSALS AND TOOLS



While carrying on its work, ASSET keeps on disseminating **TELL ME products**, which are:

- A new framework model for risk communication
- A communication practical guide
- A proposal for a new pandemic threat index
- Two online courses for primary care staff. One is about ebola virus disease, the other about seasonal flu and emerging infectious threats. Both focus on the risk of stigma and on counselling (i.e. in addressing vaccine hesitancy).

The first product of ASSET is its **website**: on a regular basis it provides features and useful resources. The website is also a tool for discussing a common strategy with stakeholders and other EU funded projects in Science-in-Society issues.

Moreover, Asset is preparing a **mailing list** of the main stakeholders in the field of risk communication and infectious outbreaks.

A Roadmap to open and responsible research and innovation in pandemics will soon introduce an **Action Plan handbook**, for all the stakeholders involved in the issue.



EXECUTIVE SUMMARY



ASSET could provide public health authorities with **resources, suggestions and tools about Science-in-Society issues**, which could help them in drawing and reviewing national and transnational pandemic and epidemic preparedness plans.

It also makes available a **qualified and diverse network of experts** in disaster management, public health and risk communication, some of whom have already cooperated within TELL ME project.

Public health authorities are asked to give their **advice** on ASSET work and further Science-in-Society issues. On these themes ASSET could detect and monitor the public opinion, both through citizens' consultations and the social media.

In this way, ASSET project, mainly through its website, could act as a **means of communication and a platform of discussion** among different stakeholders, the general public and other projects related to Science-in-Society, MMLAP and/or infectious threats.

www.asset-scienceinsociety.eu



share and move to face nasty bugs



co-funded by the EU

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612236

Effective Communication in Outbreak Management (ECOM)

During (pandemic) outbreaks, health authorities have often failed to increase vaccination uptake, because of ineffective communication. The current reality is that Europe still has a long way to go in developing preparedness programs, coordination systems and cross border action in case of (pandemic) outbreaks.

ECOM can help improving communication preparedness for the next pandemic. This EU-funded project has integrated public health, behavioral, communication and media sciences, using methods like times series analyses, audience segmentation and discrete choice experiment. It has developed evidence-based tools for policy makers to communicate effectively during major outbreaks, including tools to assess risk perception of the public, estimate vaccination uptake, review preparedness, and set up behavioral and communication plans. Building a new reality in communication during outbreaks of infectious diseases is within reach when the insights of the ECOM project are applied in practice.

Please check our website to see our main findings and download the tools. Don't miss the great intro video! WWW.ECOMEU.INFO



MISCELLANEOUS SECTION**TIEMS India Visits the 1984 Bhopal Chemical Disaster Site**

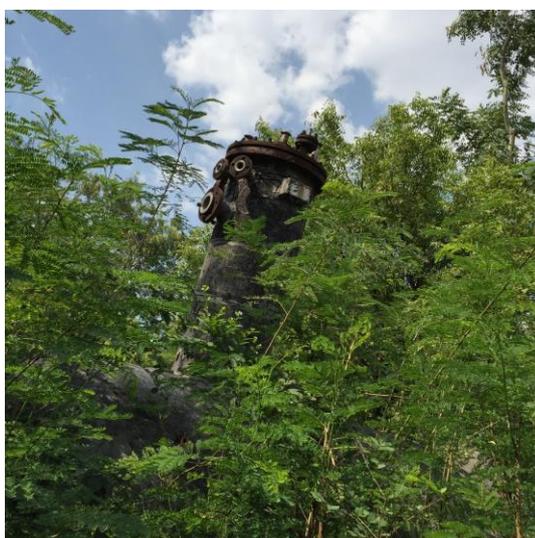
The word Bhopal has become synonymous with the chemical disaster that occurred in the Bhopal city of India on the night of Sunday Dec. 2 –and the morning of Monday Dec. 3, 1984. It is the world's biggest industrial disaster – not just the biggest chemical disaster. Bhopal is considered as a 'peace time holocaust' due to the unintended gassing of innocent people by one of the biggest and most influential corporations in the world; Union Carbide Corporation, which is incorporated in USA. Bhopal is also considered as the Hiroshima of the chemical industry.

The Union Carbide factory compound is tangled in legal controversies and still contains the remains of hazardous material. The factory compound is secured by local police and entry is highly restricted. Dr. Kailash Gupta recently visited the factory and a selection of photographs taken during the visit present a pictorial view of the infamous site (see attached photographs). These are rare pictures indeed and very difficult to obtain.

It all started from a leak in Tank E610 containing about 40 tons of Methyl Isocyanate (MIC). At five past midnight on December 03, 1984, nearly 40 tons of MIC gas leaked without any warning and the city was blanketed with a highly toxic cloud. The tank was removed from its foundation and is now lying on the ground surrounded by brush.



Tank E640 that contained MIC, which leaked, is removal from foundation is now lying among bushes



Another view of the same Tank E640*Tank E641 still in its original position. There was and still one more tank E642**Another view of Tank E641*

By morning, there were 3,828 dead bodies littered in houses and along roads, including many dead animals. The death toll mounted to 8,000 in three days. The hospitals were overflowing with many sick and dying people. According to Amnesty International 22,000 people have died of their injuries due to the disaster. The Bhopal Group for Information and Action estimates that 10 to 15 people are dying of their injuries every month. Whole sections of the population have been incapacitated for life. Mr. Gupta's driver who took him to the then Union Carbide factory was 5 years old at the time of the disaster. The driver said that even now, all these years later, he has breathing problems and gets nightmares.

For a small article see "*Bhopal Chemical Disaster*" by Kailash Gupta in *Encyclopaedia of Disaster Relief* (Vol. I, p. 35) edited by K. B. Penuel & M. Statler published by Sage in 2011 and freely downloadable from <http://digital.library.unt.edu/ark:/67531/metadc31094/?q=gupta%20kailash>. For a full book read "*Five Past Midnight in Bhopal*" by Dominique Lapierre & Javier Moro, published by Simon & Schuster in 2002. Lapierre and Moro estimate between 16,000 to 30,000 people died due to the disaster. And for a scholarly book, read "*Bhopal: Anatomy of a Crisis*," Second edition

by Paul Shrivastava published by Paul Chapman Publishing in 1992. Of course there are many other books, scholarly journals articles, and audio-visual sources.



Present bird's eye-view of the then Union Carbide plant



Inside view of the rusted Storage Tank E. H. 4 (not for MIC)



Closer view of the defunct plant



More than thirty-one year scaffold as they stand now

Even after 31 years most of the people who had family members die, injured or otherwise suffering from illnesses caused by the disaster, have still not received any compensation. The Union Carbide factory compound is tangled in legal controversies and still contains the remnants of the hazardous material.

TIEMS Newsletter Scientific Articles

The scientific articles received for publication in this newsletter are presented in a separate newsletter we have named *TIEMS Newsletter - Scientific Articles Issue no 1*.

The List of Content with Scientific Articles is as follows:

- 1, Introduction by TIEMS President
2. Emergency Management with Interdependency Modeling in the URANIUM Project
3. Low Pressure Water Mist Fire Fighting Systems - The Alternative to Traditional Systems
4. Supporting Decision Makers In Crisis Management Involving Interdependent Critical Infrastructures
5. Interactive Virtual World Models for Crisis Preparedness - Better Than the Real Thing?
6. What You Really Need to be Prepared?
7. Strategy Research of City Infrastructure Vulnerability Appraisal and Slow-Down Adaptation Due to Climatic Change
8. Nepal Earthquake 2015: Lessons Learnt and Way Forward
9. Simulation of Primary Service Degradations for Crisis Management Operations
10. Analysis of fatalities originated by burning of agricultural and forestry residues in Portugal

Next TIEMS Newsletter

The next TIEMS Newsletter is planned for March 2016.

TIEMS issues its electronic newsletter quarterly, and it is distributed to more than 36 000 experts worldwide, with articles on global emergency and disaster management events and activities, TIEMS news, etc.

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Issue no. 26 is planned for March 2016 and contributions are welcome. Please, contact one of the editors or TIEMS Secretariat if you have news, an article of interest or like to list coming events of interest for the global emergency and disaster community or like to advertise in this issue.

