

Workshop 6, Bologna (Italy) : risk management and training  
25<sup>th</sup> – 26<sup>th</sup> May 2006



Workshop 6 was held on the 25<sup>th</sup> and 26<sup>th</sup> May 2006 in Bologna, Italy. The topic of this workshop was **risk management and training**.

In this issue, you will find a summary of each presentation. More details appear on the website <http://www.setric.org>.

## Welcome and introduction

Anna Patullo, Bologna's Deputy Mayor for the Environment, Sport and Civil Protection (IT)

One of the main objectives within the scope of civil protection policies over the last few years has been public awareness campaigns.

Already included in the "Municipal plan for Civil Protection" adopted by the municipal council, such campaigns have been undertaken by involving the operators of the civil protection sector and the volunteer associations that operate in the area.

Particular attention has been paid to the area of school education through projects that aim to

raise the awareness of infant, primary and secondary school pupils and teachers in Bologna and its province.

Education/information has also been a common and shared objective of all of those involved in Civil Protection at a different institutional level (the National Department of Civil Protection, the Prefecture, the Region, Province and Municipalities, the Fire Service, etc.), given that an effective policy for prevention should include a thorough knowledge of our geographical area, its risks and the damage which could be inflicted on the area itself.

Poor information, just like insufficient attention to the instruments of prevention and intervention, may have negative consequences for the safety of citizens and those working in civil protection.

Actions have been taken in this direction to promote the development of a civil protection "culture", particularly among the younger generations, in the knowledge that the education of individuals can contribute to the success of any initiative, especially if one considers that in the extreme case of a serious disaster, our structures would struggle to meet all needs at the same time. Initially, part of the population could therefore play an active role, spontaneously taking the initiative to help others.

Helping each other in the event of an emergency is first and foremost in the interests of the individual and the community :

- individuals can use their initiative and individual sense of responsibility,
- public institutions are responsible for ensuring maximum preparation and supplying the logistical support required.

Knowledge incites preventative behaviours, which are highly useful in reducing risks : **RISK AWARENESS MEANS RISK PREVENTION.**

The willingness of the citizens to help others and themselves - whilst important - is insufficient if not supported by specific preparation including at least :

- essential basic notions of potential dangers and the relevant measures of defence,



- what must be done in the event of an emergency,
- how to help others.

All of this has been accomplished by the Municipality and other civil protection organizations, by :

- promoting basic training and instruction courses,
- promoting individual initiatives applied to specific risk situations within the area,
- distributing leaflets,
- producing educational material,
- organizing meetings and conferences,
- carrying out periodic drills, particularly for schools and organized bodies of volunteers.

The training programmes have been designed around the following fundamental issues :

- knowledge of emergency plans,
- knowledge of First Aid techniques,
- knowledge of simple fire prevention measures,
- knowledge of elementary life-saving techniques for people and animals,
- essential information on the effects caused by leaks of toxic gases and radioactive substances,
- knowledge of the most appropriate emergency evacuation techniques, their experimentation especially in schools, healthcare structures, places of work, etc.

From an organizational point of view the initiatives have been entrusted to the Civil Protection Sector with the collaboration of the Fire Service, the Institute of Geophysics and Vulcanology, the emergency health services (118), the Institute of Psychology of the University of Bologna, and organized bodies of volunteers, amongst others.

The European project SETRIC, which we have joined with interest and enthusiasm, has offered us – through the discussion and exchange of experiences at a European level – the possibility of further increasing knowledge and skills at a time when it is increasingly necessary to have efficient dialogue between the actors involved in the two main aspects of an emergency : CIVIL PROTECTION and CIVIL DEFENCE.

## The Italian civil protection experience in the international context

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The management of several emergencies and "major events", which have affected our country during recent years, has improved the experience of the National Civil Protection Service, which is based on the central coordination of a complex and co-ordinated system.



This experience has also enhanced the national interventions abroad. The Italian Civil Protection Service has not only produced a prompt response during initial emergency phases, but has also undertaken all activities aimed at recovering normal conditions as soon as possible. The Italian Civil Protection activity abroad can be represented by four emblematical examples : the intervention in Sri Lanka after the tsunami that affected South East Asia on December 26<sup>th</sup> 2004, the help offered to the U.S.A. after hurricane Katrina and to Pakistan after the earthquake in 2005, as well as the recent experience in South Sudan, where a long civil war has led to dramatic social, economic and health conditions for the population.

These efforts abroad have been the reason why the President of the Republic has decided to confer two gold civil honour medals to the Italian Civil Protection Service.



## The communication of Civil Protection during emergencies

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The regional Civil Protection System in Emilia Romagna, which is part of the National Civil Protection System, is increasingly organized and in touch with the community through local bodies.

It is based on common intervention actions aimed at providing prompt responses during emergencies, with coordination at a provincial level by the Prefectures.

This organization allows a greater efficiency in the planning of civil protection activities, notably forecasting and preventive actions developed in the Provinces.

Communication in the field of Civil Protection takes two forms :

- exchange of knowledge and information between the components of the Regional Civil Protection System,
- communication and information to inhabitants.

The Civil Protection alert, based on technical scientific forecasting, is sent to local bodies, technical structures and the inhabitants through the media.

The Active Messaging system forwards information to the institutional components and to the operative structures of the Regional Civil protection System. It is based on integrated solution hardware and software which provides all the tools required to carry out control task, to advise, and to create a log of operations related to the reception, elaboration and forwarding of official communication on civil protection issues (alerts in particular).

SIREM (integrated regional monitoring system for Civil Protection) is an instrument enabling civil protection operators to monitor the evolution of a meteorological event and to activate a state of alert in order to manage a probable hydrogeological emergency in an integrated and coordinated way.

An agreement on communication and information issues was reached in 2004 with the Department of Communication Discipline of the University of Bologna. Regional Guidelines on Civil Protection planning were also approved in 2004.

## The Italian Firemen Corps

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The National Firemen Corps is the main component of the Fire Brigade Department, which is part of the Ministry of the Interior.

It is divided into Regional and Provincial Headquarters, and permanent, mixed and volunteer detachments, all over the national territory.

There are 18 Regional Headquarters, which are directed by the same number of Regional Directors, known as general managers.

There are 103 Provincial Headquarters, directed by the same number of Commanders, known as prime managers. Nine of them, which correspond to the 9 Provinces of the regional territory, are under the management of the Emilia Romagna Regional Headquarters.

There are 30 permanent detachments, including the airport and harbour ones, 6 mixed ones and 18 volunteer ones.

There are approximately 2,500 Firemen in Emilia Romagna, while the volunteers are not more than 500. The helicopter team of Bologna, the 3 skin-diver teams of Bologna, Ferrara and Ravenna and the harbour detachment of Ravenna, also come under the management of the Regional Headquarters. The co-operation existing within the Emilia Romagna Region between the National Firemen Corps and the Regional Agency for Civil Protection is considerable and was put into effect by a special agreement.

This co-operation is evolving into a real integration of all the rescue bodies. Thanks to the economic contribution of Emilia Romagna Region, there have been considerable benefits both in terms of the increase in the number of detachments and in the purchase of vehicles and modern tools of free use to Firemen.

In the event of an emergency, the task of rescuing the population does not lie under the monopoly of one rescue service in particular. The specific competences of the different bodies should be taken into account, through the collaboration of the different services, with the aim of satisfying citizens' increasing demand for rescue in a reasonable lapse of time. This requires the use of efficient technical methods throughout the Emilia Romagna regional territory.



## Emergency planning in civil defence : past and present

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In the past, the term "civil defence" referred to the actions undertaken by civil administrations in order to support the military in times of war. Today, the term refers to actions taken to prevent all threats to citizens' life and properties and to the security of the state (such as chemical, radiological, biological and nuclear attack).

It was therefore necessary to give the term "civil defence" a new definition. Nowadays civil defence is considered to be the system that protects the country, its interests and security. Civil defence has a very complicated problem to solve because it is related to the government's continuity, to the state's vital interests and population, and to the protection of the economic, logistic and social capacity of the nation.

Civil defence and civil protection are two different systems :

- "civil protection" takes care of the population and properties during natural and anthropic calamities,
- "civil defence" deals with the state's security, and considers all emergency situations due to attacks to the nation.



## The training of Firemen specialized in NBCR risks : example of the Bologna Province Fire Brigade

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In Italy firemen are part of a national coordinated structure, able to operate throughout the whole territory, and are managed by Province and Regional Headquarters.

They are part of the Ministry of the Interior and

within the scope of public emergency interventions are competent in the field of Civil Defence. They also represent one of the main actors in Civil Protection.

After the attack on the Twin Towers in N.Y., like most other nations, Italy took increasing interest in possible terrorist attacks that could make use of explosive devices and non-conventional substances, especially of a nuclear, biological and chemical nature.

For this reason, the Firemen, who had already had considerable training for eventual nuclear and chemical emergencies, at a civil and industrial level, developed specific techniques for NBCR interventions and acquired specific technical equipment and vehicles.

The Bologna Province Fire Brigade carried out the basic training for the whole operating staff and developed several high-level training courses. These courses were also attended by the Military Police Force and State Police as well as by the Emergency Medical Service.



The preparation of the staff of the regional Unit of the Bologna NBCR was tested in several simulations at the International Airport "G.Marconi" and Ospedale Maggiore of Bologna.

## Priorities in risk management training. *Training to be prepared for surprises !*

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Risk Management differs in some ways from Crisis Management. And "risk"? What "risks"? Basically you need to clarify if you analyse risks from the point of view of the business world, the economic world or in terms of civil society.



Crisis management – structure, organization, and routines – are partly developed on the basis of experiences. You may develop an emergency plan on several different levels. However, the world of today is faced with new situations that could also be considered as emergencies. Examples that could be mentioned are :

- the shortage of oil as an instrument of warfare,
- the need for a deeper understanding of terrorism if we are to fight it,
- establishing an international organization system,
- mapping the complexity of climate change.

Should we adopt the attitude “Don’t worry, be happy!?” Or should we encourage common sense from early childhood and educate children to be responsible citizens with their own critical judgement? A democratic system relies on a certain quantity of educated people and can only function when the citizens have confidence in the political system, including risk and emergency management services aimed at protecting the safety of people.

New challenges are emerging. How can these risks be dealt with if society seems to be increasingly consumer-orientated? The risks of developing parallel societies with ethnic groups are obvious. And what about the privatization of critical infrastructures and a new nationalism we are facing. Political solutions are needed !

Meanwhile the EU Commission has elaborated new strategies for developing a civil protection system in Europe. The social inclusion of citizens in such a civil protection system could pave the way for new political and social thinking. We must avoid creating *civil protection clients*.

Recommendations therefore need to be made. For example, “global sustainable responsibility” should be taken into account in almost everything we do on this planet. Moreover, in a globalized world, some kind of standardisation is highly important as a precondition for cooperation.

To innovate in social systems we also need some sort of think tank. International organizations that were established after the last world war (UN, IMF, WB and WTO) require a restructuring. To develop new experiences and to test our systems we furthermore need simulation exercises, exercises, exercises !

But besides these priorities, maybe the most obvious challenge is training to be prepared for surprises.

## European Social Fund. Training activities and their value

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During the last six years, the European Social Fund has been an important instrument in supporting policies aimed at improving and developing civil protection competences. In collaboration with EFESO, numerous vocational training courses and system activities have been undertaken.

The collaboration was established in 2001 with a first plan, and continued until 2005 with increasingly effective plans not only in their structure, but in the way that they adopted the Civil Protection aim which EFESO has endeavoured to pursue.

The will to form a vocational training “culture” has led to the development of the ability :

- to analyze requirements,
- to translate these requirements into standardized courses,
- to certify the standards of the vocational training courses mainly attended by volunteers,
- to recognize entry credits,
- and to structure ideal insertion courses for the new volunteers.

This collaboration saw the involvement of the entire voluntary Civil Protection Service, covering all the provincial territories, but it should be pointed out that the will to create a Civil Protection vocational training system has always been strong.

In spite of the progress made, work still remains to be done and the volunteers are pursuing their actions with other instruments and means. In the last few years, volunteers have been able to benefit from many permanent vocational training courses in order to improve their ability to react and to organize their teams in the face of any kind of emergency that may strike the region.

During these years the aim has been twofold : to maintain the volunteers’ high level of competence and at the same time to build, step by step, an accepted, homogeneous system that could be a further guarantee of the excellent work that the volunteers already carry out.



## FORMEZ training centre for Civil Protection : the importance of training and information for mayors and municipal administrators

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FORMEZ – a centre for training and studies - is an Italian government agency whose mission is to foster the process of modernization and innovation in public administration, with particular attention being paid to regional and local authorities.

This process of modernization and innovation put FORMEZ at the core of a series of actions aimed at introducing innovative management systems.

FORMEZ realizes its mission through staff training within organizations.

FORMEZ has assisted local authorities on critical topics such as local development, the environment, territorial security, civil protection, and so on.

With regard to civil protection, FORMEZ started its activity in 1981, after the earthquake that hit the Basilicata and Campania regions in November 1980.

In fact, we found that the lack of training was one of the causes of the poor response to the disaster.

Since the '80s, in collaboration with the department of civil protection, FORMEZ has realized :

- short seminars and courses introducing civil protection topics to administrators, technicians and volunteers in local administrations,
- basic courses for civil protection operators in local authorities,
- training activities on forest fire fighting and environmental protection.

Within this framework FORMEZ supports local authority civil protection activities, through the training of specific decision-making skills relating to civil protection.

Training activities aim to improve the response to needs arising during a disaster, as well as to equip authorities for forecasting and prevention

tasks, which are preliminary steps before the management of a crisis and necessary recovery actions following disasters.

Among the several activities that FORMEZ has realized for many regional and local authorities, particular mention should be given to the *integrated training project 2001-2003*.

This project was aimed at local authorities and volunteers organizations, following an agreement by the Italian civil protection department, and involved managers and civil servants from local administrations, in addition to civil protection volunteers.

The main training activities realized over three years from 2001 to 2003 were :

1. Basic courses for civil protection operators,
2. Refresher courses in civil protection, in order to develop the skills for dealing with a risk that could involve the entire Italian territory,
3. Courses for experts qualified in assessing the seismic vulnerability of buildings in the event of earthquakes,
4. Course for organizers and members of volunteer associations in order to provide methods to improve the organizational, logistic and managerial aspects of volunteer associations. There were also special courses on forest fire-fighting, and courses for training the trainers, so as to help volunteer organizations learn how to organize the training of their own members.

Since 2004, with regards to civil protection topics, FORMEZ has organized :

- Masters exams for civil protection operators (disaster management),
- International activities,
- The mayors and municipal administrators project.

The most important international activities are :

- Project "alba 2" - cooperation project in Albania - now finished,
- Pilot project : management model to deal with the effects of cross-border industrial accidents, in the mean and lower basin of the Danube,
- Balkan project (regional cooperation initiative) : strengthening and training of public administrations in six Balkan countries,
- China - European public administration (cepa) programme.

In the ambit of the strategies developed for territorial governance and the new institutional order of civil protection, the *mayors (and municipal administrators) project* considers the



mayor as a key actor who plays a primary role in civil protection.

However, in reality, mayors face considerable problems because of their difficulties in correctly interpreting their role and related tasks.

On the one hand, such difficulties can be ascribed to the lack of training and information for local administrators, and on the other to the number of commitments among which civil protection is low on the scale of priority.

Within this project we want to reach a few training objectives, in particular :

- to make mayors aware of the role that the civil protection system assigns to them as well as the legal and penal consequences if they do not accomplish their tasks,
- to equip the mayors with cognitive instruments in order to allow them to manage the complex system of civil protection : forecasting and prevention, emergency planning and management, recovery to normality, etc.
- to facilitate and increase the exchange of experiences and information among all those who deal with civil protection,
- to encourage the creation of a "network" of administrators for civil protection (i.e. a professional community) able to support the choices and the responsibilities of each single administrator.

Future training / information actions include :

- the organization of brief seminars and the use of web and *e-learning information technology*,
- the transfer and dissemination of know-how with flexible web-based methods,
- the creation of a professional "on line community" for the exchange of opinions and experiences among mayors and administrators.



*Course catalogue : FORMEZ offers a range of courses carried out in agreement with the Department of Civil Protection, which guarantees their scientific validity and quality, in addition to the presence of its own lecturers and entry to the final examinations.*

## A new training course for Engineers in Lyon : "Prevention and management of risk in a territory"

### *Paving the way for excellence ?*

Bernard Guézo, Certu, Lyon (F)

The ENTPE is a Government school, located in Vaulx-en-Velin near Lyon (France). It prepares Civil Engineers for working in State organizations, local authorities, and private companies.

Courses last 3 years, with the possibility of doing an extra one-year post graduate course or a PhD.

During the first year, the course deals with basic scientific knowledge and core material on cities and buildings, the environment and risks, transportation and infrastructure.

During the second year, students have to major in a particular field : "city and buildings", "environment and risks", or "transportation and infrastructure". The subjects are studied in depth. Two important aspects of the course are training periods and an individual project.

For the third year, students have to choose one speciality within their major. For the "environment, risks and territory" major, there are three possibilities : damage and pollution, management of rivers and coastal waters, and prevention and management of risks. The third year training course is the combination of "major" courses for all students and specialities.

The "prevention and management of risks" speciality is new and is beginning at the start of the new school year (September 2006).



The origin of the project was in 2002, the creation of a "mastering natural, industrial and urban risks", in partnership with the French



Institute of Petrol (IFP). In this project, Certu was a technical partner in charge of urban risks.

A few months ago, the ENTPE asked the Certu to create a new project : the 3<sup>rd</sup> year of a Risk Diploma.

For Engineers in charge of territory, what does dealing with risks mean ?

Risk management can be a special mission within an organization (dealing with dangerous phenomena such as industrial hazards or natural risks). Risk management can also be a professional philosophy, a know-how.

Risk approach can be considered as a school of excellence, because it consists in :

- mastering fundamental technical / transversal aspects,
- dealing with systemic views / combining global approaches (technical data, sociological and economic points of view, scientific research).

It is therefore important to work on technical aspects, but also on organizational problems.

The challenge when developing this pedagogical project was to offer an overall approach, which deals with the basics, but gives practical adaptations in various fields. It must also allow students to have a grounding in developing risk approaches in many professional situations and consequently in the future to be able to reinforce their expertise by themselves.

The course encompasses general concepts, legal and economic aspects, the principle of precaution, dynamics, and defence in depth.

The "prevention and management of risks" speciality includes :

- policies : natural risks, industrial risks, mining risks, security of dams.
- process, techniques and tools : risk prevention in land use planning (PPR), insurance aspects, public information and debate between the State and the local authorities.

The sub-topic "integration in territorial and sustainable action" includes :

- land use planning : water cycles in the city, taking into account risk in an operational project,
- risk and surface transport : hazardous goods transport, road safety, tunnel safety.
- mastering quality and security in buildings and infrastructures. This means looking at risk management in the following fields : building design, the management, hygiene and security, fire risks in buildings, ...
- Risk and territory : sociological and economic approaches identifying what it is possible to do.

The sub-topic "taking risks into account in local strategies" includes :

- a crisis management course: preparation and planning, crisis management, recovery, feedback.
- a workshop with practical exercises in a real territory.

At the end of the course, students will have to study a particular problem in detail within a professional organization and create innovative solutions.

## Public communication on the dangers and risks of volcanoes, the Vesuvius experience

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Volcanoes are one of the public's most popular scientific issues, and the request for information about them based on volcano research is particularly frequent and considerable in active volcanic areas.

Education and information programmes play an important role in natural risk mitigation measures. A long-term effort in educational programmes is essential to convey simple, clear and complete information able to contribute to a better understanding of unusual natural features within a territory and the related hazards and risks.



In Italy, the National Institute of Geophysics and Vulcanology (INGV) promotes education and outreach activities relating to natural risks. Activities focused on volcanic risk in particular



are mainly carried out by INGV sections of the Osservatorio Vesuviano, in Neapolitan area, in collaboration with the Civil Defence Department. The Osservatorio Vesuviano, founded in 1841, was the first volcano observatory in the world, and is a scientific institution interested in geophysics and volcanic research mainly on Neapolitan volcanoes. It also carries out actions aimed at broadening scientific awareness in terms of geological phenomena, and in particular volcanic-related hazards.

The educational programmes provided are mostly aimed at schools. At the historic Osservatorio building, school groups are welcomed daily and given a guided visit of the permanent exhibition which provides visitors with a comprehensive view of scientific research on volcanic phenomena, their related hazards and the emergency plans for the Neapolitan volcanoes, which are shown through posters, short texts and videos.

The general public are also free to visit during the weekend. Each year the observatory welcomes more than 12,000 visitors, from Italy and abroad.

Courses have been given to school teachers working in the part of the Neapolitan area exposed to the highest volcanic risk, sometimes in co-operation with Civil Defence officers. The aim of these courses is to give to the teachers the cultural background necessary to transfer a risk culture to their students and colleagues, but at the same time to develop a new multi-disciplinary approach to volcanic issues.

Seminars aimed at illustrating the history and present state of the Neapolitan volcanoes are held in schools, universities and other public and private institutions.

Very often meetings are held in non-conventional places and contexts, using an informal approach, to bring science out of the laboratories and universities and closer to everyday life.

In the last few years, the Osservatorio Vesuviano has played its role of a scientific reference through projects proposed by schools themselves, such as the European project „Comenius 2004/2006“ that has put into practice a multinational and interdisciplinary educational approach, involving four high schools from different countries in activities related to major natural risks. Each school has a scientific institution as its „tutor“. The Italian high school has dealt with the volcanic hazards and risks that characterize the area surrounding the city of Naples, with the Osservatorio Vesuviano acting as its scientific referee.

The Neapolitan experiences highlight the fact that the scientific community is likely to be increasingly involved in outreach activities. To improve and to better orientate educational efforts, we have to learn to adapt communication languages and contexts to the public in question. We need to consider scientific communication as a tool in risk mitigation strategies, but also as a tool to promote scientific studies, and science as a possible choice for students' future careers.



## Applied methodology for information on areas damaged by forest fires

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The Province of Bologna has been equipped with a forestal cartography containing information that defines the vegetal features and the forestal population found throughout the territory and that guarantees information on forestal viability and the forestal areas covered by fire.

The scope of the cartography was fixed by the staff of the Corpo Forestale dello Stato, and uses GPS (Global Positioning System).

The presentation given during the workshop introduced the system used to identify different levels of damage within the forestal areas affected by fires and the data obtained as a result of the system.

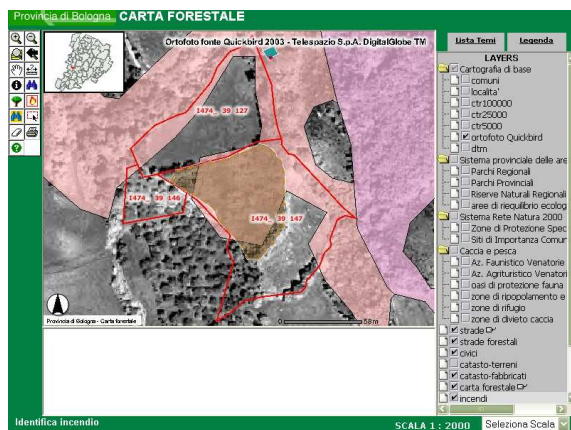


Thanks to the parameters selected for the GPS-instruments and the efficient application of the methods used to acquire positions in a relief phase, it was possible to obtain highly reliable output data.

Moreover, the data obtained in this specific way remained correct as a result of different post-processing simulations, and if necessary, in the event of multipath errors, they were manually controlled.

The purpose of this work was to locate and isolate the recorded areas exposed to fire.

The resulting cartography was integrated into the Province Territory Information System. Information was also made available on a web-site.



*Details of the mapping of the forest fire area with cadastral reference data.*

## Municipal Police and Civil Protection : training and organization experiences

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The presentation describes the functions and competence of the municipal police and the Association of Municipalities actions among local services, in order to share experiences relating to local police and civil protection functions.

The municipal police's role in civil protection covers prevention and organization actions that are necessary in an emergency.

It is important to develop knowledge of the way in which civil protection is structured. This is true not only for local police officers, but also for civil protection volunteers. It is highly important to adapt collaboration to the needs of every subject involved (according to an Emilia-Romagna local law).

The Emilia Romagna Regional School of Municipal Police provides theoretical and practical training : for example visits to control centres, road escorts, critical area delimitation...

## Italian Consensus Conference on "guidelines for medical intervention in the event of disasters"

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The Consensus Conference, held on the 4<sup>th</sup> and 5<sup>th</sup> November 2005 in Bologna, paved the way for the improvement of medical emergency services within the context of mass casualty incidents (MCI) and disasters, based on Evidence Based Medicine requirements.

The Consensus Conference was realized with the cooperation of the Fire Department and highlighted the awareness of the need for a strong integration between the different actors of MCI and disasters relief.

Following in the footsteps of the Danish, the Consensus Conference was planned as a sort of "trial", involving participants from all over the Country with experience in the field and a Jury, made up of the general public, magistrates, ethical committee members, disaster victim associations, firemen and the national Civil Protection Dpt.

An audience of about 150 people attended to the Conference. For these people a disaster simulation game was arranged in order to allow a greater involvement while the Jury and other participants developed a final document in closed sessions.

Due to the magnitude of the subject, only 3 topics were selected for this very first venue : triage, the rescue chain, and the level of medical care.



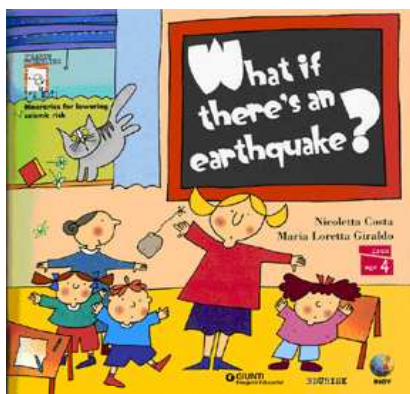


The final document has been prepared, resuming the Jury's opinions after discussion of all the selected topics and has been forwarded to scientific establishments, local and national boards of administrators and specialized press.

## Risk training strategy for schools : the EDURISK project for the Bologna area

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Awareness of risk and the implementation of individual and collective mitigating actions is a cultural problem. It requires the development of educational processes aimed at gaining a complete understanding of the personal consequences and the interactions between a physical or geological phenomenon such as an earthquake and the human environment affected by it.



*Educational tools published by the EDURISK project*

To this purpose, the EDURISK project (Earthquake Education: a journey for risk reduction) has been devised and implemented since 2002. A number of educational initiatives on risk mitigation have been undertaken in several Italian schools, with the participation of around 500 teachers and 15,000 students.

Training courses, some of them also available as correspondence courses, have also been developed for teachers in addition to classroom activities based on a multidisciplinary approach, which takes into account the specific environment of each school and its knowledge of the local environment's physical, historic and cultural characteristics.

## Crying wolf : stay safe with Pimpa. Safety projects for the nursery and infant schools in the Navile district

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This presentation focussed on the educational project on safety regulations and procedures carried out in the Navile district.

The project targets the 1,850 children up to the age of 5, who attend the 29 schools and educational services in the Navile district (nursery schools, infant schools, other services).

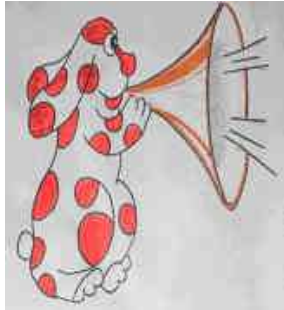
The main aim of the project is to set up educational activities involving emergency evacuation plans, so that the children can be taken to safety in a calm and panic-free way.

Secondary aims include the choice of posters, tools and materials, the definition of evacuation plans, the specification of common safety behaviour regulations, and the creation of an informative brochure for parents and teachers.

The project planning phase involved teachers and auxiliary educators in two working groups.

The working groups decided to select a character chosen from those best known and most loved by children, that they will identify with outside assembly points and recognize in their everyday use of outside spaces. PIMPA, a well-known character drawn by Altan, was chosen. Pimpa entices the children outside with the promise of a special event (stories, songs, rhymes, games).





The procedure is as follows : the childrens' attention is drawn to the adult calling them whilst at the same time, the playful element is highlighted (Pimpa is waiting for you with presents, messages, games). In order to encourage the children to go outside without running, pushing or shouting, the teachers aim to raise their curiosity. Smaller children use walkers and the children too small to walk are carried out in special play carts. Pimpa is there to welcome them at the assembly point.

The tools used are posters, Pimpa figures, safety handbooks, play-carts to take the smaller children outside, evacuation reports and information brochures for parents and teachers.

## Disaster Management : a handbook for courses aimed at health personnel

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The HDM (Hospital Disaster Management) Course has three main teaching objectives :

- 1) to provide the students with knowledge of the effects of disasters and major incidents on hospitals,
- 2) to increase the students' capability to develop an effective disaster preparedness plan for their hospitals,
- 3) to increase the skills needed to properly manage a disaster situation (crisis management).

The course is designed for physicians and nurses working in hospital environments (12-16

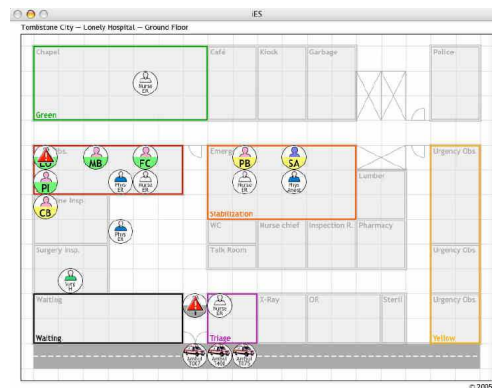
participants). Its duration is 20 hours over two and a half days, which are divided into lectures, planning sessions and simulations. The final assessment is based on a disaster scenario evaluation and an MCQ paper.

The planning sessions are set in a virtual city, with its specific features (environment, population, industries, infrastructures, social issues, etc.) and its related risks. The participants are divided into three teams, each caring for a particular city hospital, and are given the task of increasing its disaster preparedness. The three teams must cooperate to define common strategies, manage the budget and reach agreements with other organizations and agencies (for example, with the local EMS).

Computer-based simulations are organized :

- role-playing sessions, where each participant plays a management role specified by the hospital disaster preparedness plan, and takes critical decisions,
- teaching sessions specifically aimed to develop specific skills crucial in crisis management : communication and team management.

The Hospital Disaster Management Course is endorsed by the Associazione Italiana Medicina delle Catastrofi (AIMC) and has been chosen as reference course for disaster preparedness by several major Italian hospitals.



*An E.D. casualties admission computer-based simulation*



## **PLOT project : post traumatic psychological support to the victims of terrorist attacks : training actions**

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Recent violent terrorist attacks have led to a strong and permanent feeling of personal insecurity. Following a terrorist attack psychological after-effects such as Post Traumatic Stress Disorders (PTSD) are to be expected among the victims and their relatives as well as among actively involved military and humanitarian personnel.

For this reason, research projects are being promoted by the European Union, which are concerned with the prevention of lasting psychological disorders resulting from terrorist attacks.

We present the initiative of a Cooperative formed by the Institute for Clinical Psychology and Psychotherapy of the University of Cologne, the Center of Psychotraumatology in Krefeld, and the Cologne Office of International Affairs. The Target Group Intervention Programme will adapt its crisis intervention strategy to the particular situational dynamics affecting victims of terrorist attacks. The Cooperative aims to integrate crisis intervention programmes into the restabilization efforts of medical and logistic personnel in major loss situations. Minimum standards must be defined to overcome the so-called "debriefing controversy".

We conclude that the identification of risk factors for the development of PTSD is necessary in order to overcome the polarization of the debriefing controversy. Once this is done, a meaningful crisis intervention programme for each and any target group can be derived from the standard version of the Target Group Intervention Programme. As opposed to somatic emergency medical treatment, the follow-up of psychological crisis intervention programmes is decisive in the successful treatment of lasting psychological damage resulting from terrorist attacks.

## **Disaster preparedness : training trainers for Sri Lanka. An international co-operation project of the Healthcare Institute.**

Pier Luigi Ingrassia, MD Senior Resident in Anaesthesiology, Intensiv and Critical Emergency Care, Eastern Piemonte University (IT), pingrass@fsb.it

The Tsunami that hit Sri Lanka on December 26th 2004 caused thousands of victims among the population and highlighted the need to strengthen the country's disaster preparedness and its management of complex emergencies.

Among the post disaster rehabilitation activities is a project funded by the Italian Ministry of Foreign Affairs and implemented by the Italian National Health Institute (Istituto Superiore di Sanita - ISS). Its purpose is to strengthen national skills relating to planning, managing and coordinating emergencies in Sri Lanka.

The project is intended to support the Ministry of Health of Sri Lanka and the National Institute of Health Sciences (NIHS), an institutional counterpart of ISS, in planning and carrying out a training programme on emergency management.

The project's strategic approach is new and innovative. It adopts a top-down system. 75 trainers are selected at a national level from all Sri Lanka districts and from the NIHS. These health providers are educated to become trainers of 660 middle level health managers selected at a divisional level. In turn, they pass on the skills and the didactic methodology. The didactic approach is the problem-based learning (PBL), which makes use of case studies, role-play, simulation and self-evaluation : the trainer is a facilitator rather than a teacher.

5 workshops were carried out. In the first two workshops (November and December 2005) the curriculum was developed in collaboration with the national and local managers; in the third (January 2006) the participants were trained according to the PBL approach; in the fourth (February 2006), in collaboration with experts from the Associazione Italiana di Medicina delle Catastrofi (AIMC), the reading material was selected, reviewed and identified in a single document to be used in the course as reference material for the management of disasters and complex emergencies; in the last workshop (March 2006) the contents were adapted to the



national context and the course was developed according with the PBL principles.



*Workshop on Methodological Adaptation*

## Training for emergency health situations at infrastructure construction sites

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Within the urban area of Bologna and its southern hills and surroundings, huge infrastructure projects have been started over the last ten years: a railway tunnel between Bologna and Florence (about 73 km long) and the widening of the A1 motorway segment from Casalecchio di Reno and Barberino del Mugello (the so called "Variante di Valico": Appennine Bypass).

To the 73 km of the main railway tunnel, another 30 km of service and rescue tunnels have to be added, leading to a total length of about 100 km of tunnels bored through mountains that often revealed firedamp presence.

The overall length of the A1 "Variante di Valico" is about 60 km of which only 20 km are at ground level, while 10 km are on viaducts and about 30 km in twin-bore tunnels with the same problems of firedamp presence that were encountered in the railway tunnel.

Since 1996 the 118 GECAV team (Gestione Emergenza Cantieri Alta Velocità e Variante di Valico), has been identified as the body responsible for the planning and the management of medical rescue operations in the event of an accident involving workers and the population, within the region where the work sites are located. The very first step was

to improve training for the workers, the medical personnel and the population. In particular, a continuing education programme has been adopted for the medical personnel. This programme focusses on specific topics related to rescue operations in a "hostile" environment and includes periodic simulation exercises in "smoke room", on "climbing tower", in tunnels and on rough terrains, in addition to the usual clinical courses :

- "smoke room" exercises are needed in order to keep rescuers familiar with breathing apparatus that doctors and nurses have to wear in case of rescue operations within tunnels currently under construction or planned for the future. A fire inside a tunnel is the most frightening scenario and the most probable. The GECAV "smoke room" in Lama di Setta is the only training structure owned by a medical team in Italy.



- the "climbing tower" is a 20 meter high scaffold used to teach the GECAV team (31 doctors, 120 nurses and 20 ambulance drivers) climbing skills required for rescue operations in mountains, on rough terrains and on viaduct work sites.



## Emergo Train Game



### Description of the scenario

Italian Association for Catastrophe Medicine (AIMC)

After the experience of workshop 5 held in Prague, we considered it useful to organize a second drill on major accidents in order to finalize the Bologna workshop.

We chose the Emergo Train System® (ETS) method, devised and developed by the Linköping University (Sweden), which the Italian Association of Disaster Medicine has used for years during the training courses organized for the medical rescue staff to prepare them for mass emergencies.

A member of the Association, trained in Sweden and qualified to conduct ETS scenarios, acted as Senior Instructor.

ETS was chosen, rather than a more classic table-top drill, as this particular simulation system allows greater participant involvement and interactivity.

ETS enables participants to act exactly as they would in a full scale drill, with the only difference being that personnel movements and interactions out on the field are featured on whiteboards with the aid of magnetic icons.

This allows drill costs and duration to be reduced, according to the time scale chosen, and provides an overview of the whole scenario (especially during session breaks and the final debriefing session). It also enables the drill to remain realistic, right down to the participant's emotional involvement.

The technical skills required to play the different roles in the simulation can be modulated according to the specific purposes identified by the drill planning : in the case of the Bologna Workshop, the choice was not to enter the field of specific professional skills, but to remain at a more general level, using the elements of common sense and knowledge that mass emergency response planning officers are likely to require.

#### The scenario

The chosen scenario was an accident involving the release of toxic substances : a barge transporting tanks of chemicals (ammonia and chlorine) caught fire and was out of control. Driven by the current, it caused an initial collective intoxication in a fishing village. Its toxic

cloud then affected some sparsely populated areas located upriver from its final impact with a bridge pillar, just windward of a river beach in the suburbs of a medium size city.



The specificity of the scenario lay in the movement of the hazard source with the subsequent pollution of many inhabited areas before it ran aground at the pillars of a very busy bridge.



#### The aims

Due to the need to realize the drill within a short lapse of time and considering the heterogeneous professional profiles of the participants, we gave priority to elements of general interest :

1. Risk assessment : the participants had to identify the movement of the boat as the critical element of the scenario, forecasting possible places where it could stop and where it would be possible to board and stop the spread of toxic pollution.
2. Consequences assessment : the fact that during the movement of the boat, the toxic cloud affected some inhabited areas was aimed at verifying if the participants would be distracted by contingency or if they would show



the ability to maintain a more global vision of the whole problem.

3. Operative problem assessment : using the role-play provided by ETS demonstrates the major problems in complex emergency management and communication (due to many human activities). As an example, the participants in charge of the Coordination Centre's duties were located in a separate room and their decisions depended entirely on the communication ability of those who personified the on-site rescue teams.

### The results

At the end of the simulation, feed-back was given to the participants.

The first item that was pointed out was the comparison between what showed on the whiteboard, featuring the operational area, and what showed on the little 3D plastic model made available to the Coordination Centre officers in order to allow them to visualize the rescue operation progress.



The differences found marked that the rescue teams and remote coordination centres had a different perception of the operation scene, highlighting areas in need of improvement.

A second subject of discussion arose during the training session break. The group of participants personifying the rescue teams was able to point out the more critical elements hidden inside the scenario (the movement of the contamination source and the need to forecast the extension of consequences). At the same time it was possible to realize that in the initial phase they carried out certain interventions in an illogical manner (sanitary equipment entered a contaminated area, while fire-fighting equipment remained at a considerable distance from the hazardous area; there were many rescue teams in one area, even though the hazard source was evidently moving). The participants overlooked the movement of the drifting boat and focused on the first group of people injured by the inhalation of the toxic cloud (that was moving towards the main town!)

The third discussion topic was the decision of one of

the Coordination Centre team members who, either not trusting or not being satisfied with the received information, moved to the operation zone, with remarkable repercussions on the leadership process that was laboriously going on among the rescue team members on site.

### Conclusions

The drill, even carried out in a short lapse of time (about 2 hours), allowed the participants to identify some critical elements in major emergency management that are useful for improving the initiatives of rescue planning and management.

### Credits

- Emergo Train System®, Katastrofmedicinskt Centrum, University Hospital, Linköping, Sweden
- Senior Instructor : Stefano Badiali MD, ICU, Emergency Dpt. Ospedale Maggiore, Bologna, Italy, AIMC
- Basic Instructors : Liliana Copertino MD, Aimone Giugni MD, Nataschia Visani RN, Emergency Dpt. Ospedale Maggiore, Bologna, Italy, AIMC. Pierluigi Ingrassia MD, ICU University of Eastern Piedmont, Novara, Italy, AIMC
- Logistics and organization : Fernando Candido, Emergency Dpt. Ospedale Maggiore, Bologna, Italy, AIMC



## SETRIC Agenda

### **Kick-Off Conference**

St-Augustin (FIT) (DE), 24<sup>th</sup>-25<sup>th</sup> February 2005

### **Workshop 1 : Prevention**

Naestved (DK), 26<sup>th</sup>-27<sup>th</sup> May 2005

### **Workshop 2 : Mitigation**

Lyon (FR), 30<sup>th</sup> June – 1<sup>st</sup> July 2005

### **Workshop 3 : Response**

Siena (IT), 6<sup>th</sup> – 7<sup>th</sup> October 2005

### **Workshop 4 : Recovery**

Praha (CZ), 8<sup>th</sup> – 9<sup>th</sup> December 2005

### **Workshop 5 : Organization and communication**

Cologne and Bonn (DE), 15<sup>th</sup>-17<sup>th</sup> March 2006

### **Workshop 6 : Risk management and training**

Bologna (IT), 25<sup>th</sup>-26<sup>th</sup> May 2006

### **Final Conference**

Paris (FR), 26<sup>th</sup>-27<sup>th</sup> October 2006

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