newsletter

SETRIC
SECURITY AND TRUST IN CITIES

Issue 1 June 2005

What is the SETRIC Project ?

Prevention and management of major crises requires a high level of technical and infrastructural expertise. Some cities have already designed comprehensive crisis management systems. Others are only starting to do so. Research institutes are working on different specific procedures and technical devices.

SETRIC now intends to create a forum for the exchange of ideas and existing structures, bridging the gap between research and practice as well as the distance between different regions and cities.

The SETRIC network will also set out to undertake, in a later stage of the project, a joint effort in designing a model prevention and response structure.

The interregional approach - comprising municipalities and research institutions from various European countries - is not only the most efficient way for all partners to design their own crisis response system based on a large pool of experience. It also enhances interregional co-operation in general and in this specific field.

How does SETRIC work ?

The SETRIC approach is based on communication and means of facilitating the exchange of ideas and concepts.

Regular meetings constitute a core methodological instrument, enabling all partners to easily exchange and discuss established procedures and new concepts. These meetings are designed in a particular way.

An opening conference (described in this first newsletter) took a broad approach to the topic, addressing existing threats and response structures on a large scale.

Four subsequent workshops will then deal with all phases of crisis management (prevention, mitigation, response, recovery) and with specific core issues common to all these phases (organisation, communication, training).

A final conference will then bring these different elements together and allow for the presentation of jointly developed model procedures.

Kick-Off Conference Schloss Birlinghoven (Germany) 24th-25th February 2005

The opening conference was held on the 24th-25th February 2005 in St. Augustin, Germany. In the following pages, you will find a summary of each presentation.

North East South West
INTERREG IIIC

Project part-financed by the European Union within the INTERREG IIIC Programme

Overview of European research projects in the context of risk management

Martin Sedlmayr & Thomas Rose, Fraunhofer FIT

Quite a few European research projects so far have dealt with risk and crisis management or related topics. The challenge is to find better and improved risk management technologies and systems at a European level, to strengthen security and to establish Europe-wide technologies for all emergency services across Europe in order to improve prevention, mitigation, response and recovery in emergency situations.

To date , emergency services have coped well in forecasting, monitoring, mapping and suppressing hazards such as floods, forestfires or volcanic eruptions and have taken many different preventive measures against these hazards. But since what Europeans fear most are international terrorism, organised crime, proliferation of weapons of mass destruction, nuclear accidents, a world war, diseases etc, one can clearly see that these are mainly man-made and sudden catastrophes.

So while Europeans may feel secure in the event of environmental catastrophes, they fear the unexpected, hence their trust in the response and action capacities of emergency services is understandably limited. Projects like SETRIC should therefore primarily focus on improving the emergency services' ability to react in the event of an emergency.

The 25 EU-Member states all have very different information systems, operational procedures and communication systems. They are generally very poorly equipped and can afford only gradual investments. There is thus a need for EU investments and interoperability in order to design, validate and demonstrate a generic, integrated and open risk management system to deal with large-scale and cross-boarder disasters.

FIT research was focused on information and data support systems used to disseminate information or data and on technical developments such as dedicated equipment for all kinds of emergency situations. Projects such as DELVE, EURITRACK, EUROPCOM, MITRA, OASIS, ORCHESTRA, STREAM, WIN and many more are all currently working on different specific aspects of risk management.

The efforts needed to improve crisis management in Europe are the harmonisation of assessment techniques, the standardization of geo-spatial and analytical tools, the integration of sensors and more secure and dependable public safety communication procedures.

Examples of Hazardous Events

Flooding

Reinhard Vogt, Flood Protection Centre, Cologne
http://hochwasserinfo-koeln.de

Although flooding in Cologne is the city's most regular catastrophe, it is difficult to forecast. More than anything else, a proper protection plan is therefore needed to be able to rescue and secure the city's population in case of an emergency. Cologne suffered its last big floods in 1993 and 1995 and it is very likely that another, possibly worse flood may happen very soon.

In the event of an emergency, the Cologne protection plan consists of the evacuation of people (if necessary), goods (such as cars) and primarily protection from water through the use of protection walls, sand barriers and water pumps. There are also many danger maps, which clearly list all the consequences and potential dangers of all different water levels. There are different plans for different water levels, such as emergency and escape roads to be used etc.

The flood protection office has also worked out a plan to calculate damage in financial terms, depending on water levels and the possible damage with and without flood protection. One major task of the flood protection office is warning the population, since awareness always fades after long flood-free periods. However, people can be only saved if they always know when and how to react. There are many electronic monitoring and planning devices to help protect the city. The office also helps to develop and spread preventive techniques and it takes part in flood-oriented city networks and EU-Projects such as the NOAH-Project. The most important issue in flood protection, however, is warning the population, because you never know exactly when the next flood will strike, you only know that sooner or later it *will* strike.

2002 Floods in Prague

Petr Beran & Pavel Uher,
City of Prague
http ://www.praha-mesto.cz

In August 2002 Prague was hit by the heaviest flood in its modern history. With heavy rainfalls nationwide, water levels in all watercourses flowing through Prague exceeded most of the flood marks of the highest recorded floods in history.

In Prague the protection of the population and property in the event of floods is regulated by the Water Act, which contains direct references to other laws governing emergency and crisis situations. It also includes several recommendations given in individual water projects, on the planning of flood areas, flood audits, flood forecasting and warning services and regular maintenance of the watercourse beds.

The warnings are provided through a forecasting system consisting of transmitting accurate time data about the rise of water levels, mathematical models giving the precipitation-outflow relationship, models for optimising dam manipulation and weather forecasting.

Inside the city, communication elements and in particular information data, are gathered from the Safety and Rescue Systems with their many monitoring methods for all kinds of emergency situations and disasters.

Strategy for fighting floods

Didier Dely, City of Paris
http ://www.Paris.fr

In 1910 Paris suffered a major flood, the likes of which it had not seen for hundreds of years. How do these catastrophes occur and how can a city prepare for the unexpected ?

In France many rivers flow towards the Île-de-France area and converge shortly before it, so that floods can fairly easily become dangerous if the levels of only a few of these rivers rise slightly. However, exceptional overflow can be caused through water-saturated soils (as in 1910), excess underground water and a flood of the entire river system.

Factors that make matters worse are urbanisation, mineralization of river' banks that increase the speed of floods, agricultural processes that render soils waterproof and climatic disturbances.

The city administration is trying to prevent such catastrophic floods in future by trying to forecast and announce dangerous situations through information and data sharing.

The water level of 1910 has since then been the reference level for any prevention plan, because if a similar flood to that of 1910 should occur in 2010, much damage would be the same, but many more people would be affected by it, due to the city's enormous growth.

The city's preparation plan consists of warning and informing the population about possible risks, taking preventive measures, establishing procedures, acquiring crisis equipment and training staff to be prepared.

The aim is to get the maximum amount of data and to use predictive computer simulations, to disseminate information as widely as possible to all actors involved and to react in consistent ways with all levels of government.

In reality, the efficiency of all these preparatory measures can only be proven in the event of an actual emergency. Should another major flood occur tomorrow, people are far more dependent on technology and therefore far more vulnerable than in 1910.

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Project part-financed by the European Union within the INTERREG IIIC Programme

Explosion of a chemical plant in Toulouse

Bernard Guezo, CERTU
http://www.certu.fr

Presentation with the help of Ministry of Ecology and Sustainable Development, BARPI (Governmental office) and INERIS.

On the 21st September 2001, Toulouse suffered a tremendous explosion at a chemical industry plant with enormous human, material and economical consequences. The surrounding area which included warehouses, a by-pass, railways, a bus depot, houses and shops, was affected too. The accident produced an explosion equal to 3.4 on the Richter scale and made a 50x60 m crater that was up to 10 m deep.

Experts think that the accident was caused by chemical reactions between many products.

30 people died, including eight people not on the site, one of which was a secondary school pupil. Many thousands of people suffered from physical and psychological injuries. 30,000 houses and flats were destroyed or seriously damaged, 1,800 families had to be re-housed, and several educational establishments were temporarily closed. Several plants and buildings on and near the site were destroyed. Companies shut down their offices or factories and around 1,000 companies with 20,000 jobs within the 100,000 m² damaged area were somehow affected through this accident.

As recovery measures, an emergency fund was raised and several medical and epidemiological surveys on people and the environment were made. A lot of psychological aid is still being given to people from Toulouse.

At a legislative level, new laws for risk management, implicating greater responsibility for local authorities, were made in a short time, and new risk prevention and mitigation strategies were disseminated nationwide to reduce future risks. This was also an attempt to improve governance, in particular in industrial hazard and risk management policies.

Processes for crisis management in European cities

Bologna, 2nd August 1980 - Extraordinary coordination of ordinary forces

Elio Michelini, Bologna Municipal Civil Protection Service & Stefano Badiali, Catastrophy Medicine Expert

Between 1974 and 1984 Bologna and the surrounding region was the target of three terrible terrorist attacks, the biggest of which took place on the 2nd August in 1980, inside the central railway station in Bologna city centre. All three attacks were bombings on trains. On the 2nd August 1980, 85 people died and more than 200 were wounded.

Spontaneous rescue took place involving ambulances and emergency medical services, hospitals, and a very high number of volunteers, motivated through their strong feeling of citizenship. There was no specific training or equipment for such an event. Hospital ambulances are not usually involved in first aid and radio and telephone network systems were

still at a very early phase of development. Until July 1st 1980 there was no central dispatch centre for city ambulance services. Since then they have started to use their own and a general radio frequency. Also, there was no Town Office for Civil Protection nor any Emergency Plan of any kind.

The Rescue consisted of 7 Phases. In the first one, a spontaneous and self-managed rescue involving citizens started right after the bombing. In the 2nd phase, the first organised sanitary, technical and material aid began while during the 3rd phase the town hall activated a reception and information centre, an operative municipal rescue centre and a kind of a mixed operative centre. In the 4th phase, the Bologna Rescue Service helped to improve the transport of injured people, an organisation that is still in operation today, under the name of "the 118 service". During the 5th phase, until the 5th August, the reception and information centre organised support for relatives with a considerable amount of voluntary help from hotels, restaurants and taxi drivers, while fire brigades and military services cleared the railway station and the city of remaining debris. The 6th phase on the 6th August was the day of state funerals. The 7th phase, which started on the 6th August is still running and giving help and financial support to as many needy people as possible.

The positive points in terms of the response to the attack were the quick and efficient organisation of all aid services as well as voluntary help from citizens, the organisation of a reception and information centre, the co-ordination of rescuers managed by fire fighters and the co-ordination skills of the different public structures, even though they were lacking emergency plans.

Management of an industrial crisis : how to prepare for it ?

Clément Jacquier, Feyzin municipality
http://www.ville-feyzin.fr

The town of Feyzin with its 9,347 inhabitants is located in the "Vallée de la Chimie" (Chemical Valley) south of Lyon and was scene to a major chemical accident in 1966. The city's Mayor and Prefect are responsible for citizens' safety and have adopted an approach which uses ready-to-use crisis management plans for industrial and environmental hazards. In the past, industrial hazards were ignored until accidents such as those which occurred in 1966 in Feyzin, 1976 in Seveso, 1984 in Bhopal, 1986 in Tchernobyl and 2001 in Toulouse, but today there is greater public awareness.

The preconception with Feyzin is that the industry cannot be moved to the countryside and entire districts cannot be sacrificed. The town has made several hazard maps and actions plans used under normal circumstances (health observation, noise protection walls, alert simulations and the training of council employees), or in crisis situations (safety plans for all important buildings, infrastructure and city districts), in addition to post crisis management plans. These plans were developed in workshops with numerous partners, including local companies and industries.

The population is regularly informed by escape plan, booklets, behaviour cards etc. There is also a strict communication plan in the event of an emergency.

Organisation and problems of risk management in Cologne

Stephan Neuhoff, Chief of the Fire Brigade, Cologne

The city of Cologne is faced with many different risks, as it is an area of 1 million inhabitants, one of the biggest chemical industry sites in Germany, a junction of 10 railways and a point where 10 motorways intersect. It especially faces possible accidents in the chemical industry, caused by oil tankers on the river Rhine, tank wagons on the railways, the dysfunction of supply lines, earthquakes, storms, floods and terrorism to name but a few.

In Germany, crisis management responsibilities, for typical disasters and in the event of war, are split between the federal and state governments. In the event of an emergency, the mayor of Cologne is head of the emergency committee, which has administrative and organisational functions, and of the squad leader which has operational and tactical functions. Both consist of permanent members and have structured plans for emergency situations. Major tasks are warning the population, preparation of crisis management plans, preparation of suitable plans for specific incidents.

The strengths in catastrophe management in Cologne concern the warning of the population, general evacuation plans, emergency plans for the chemical industry, plans for medium-severe flooding and the capacity to deal with a sudden huge number of wounded. Weaknesses are plans relating to infrastructure dysfunction, extreme flooding, epidemics and ABC-situations as well as public relations in an emergency and securing communication means for the city's administration.

Problems occur since there is a lack of available emergency services, there are no standard practices for co-operation on higher levels than just the local or regional settings, the equipment is outdated and there is a lack of facilities and standard practices for the decontamination of people. In addition, there are not enough vehicles and standard practices for extreme situations and there is a lack of alternatives in the event of dysfunctional hospitals.

Technology related to Crisis Management

Communication among rescue forces

Jacob Madsen, Technical Director, City of Naestved
http ://www.naestved.dk

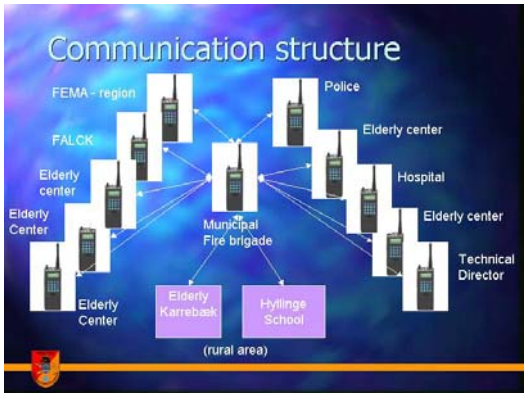
When preparing for the millennium bug during 1999, the city of Naestved uncovered sensitive points in the emergency service chains and came up with a new communication system.

There was no guarantee from power suppliers, none from telecommunication companies and also no guarantee on back up systems, so the city had to set priorities in order to be able to ensure the most basic needs in the event of an emergency. This led to the importance of a new communication system independent of power supply and existing telecommunication or radio infrastructure.

The city of Naestved came up with special selected equipment communicating radio frequencies, especially ordered for this specific situation. All emergency units and all volunteer aid services were equipped with these portable radios. As the citizens also needed to be able to communicate with people, the city also developed citizen contact points that were also equipped with communication technology. These contact points were strategic points known to all citizens, such as elderly peoples' homes and state schools. There was also a communication plan worked out for this occasion.

As a storm showed, on the 3rd December 1999, when numerous households were without power for up to ten days, the city needed to improve their communication plan, which it did until the night of the millennium bug. The citizens were informed via local newspapers, including a "Help Your Neighbour campaign", via official letters from the mayor to all citizens. On the 31st December 1999, luckily nothing happened.

During a power cut in September 2003, the communication in Naestved failed completely, which is why the city considered putting the millennium communication plan back into action.



Developing databases as an inventory of vulnerable people in Paris (heat wave management)

Didier Dely, City of Paris

Due to the very hot summers in the last few years, many old people in Paris suffered considerably and even died. The city of Paris therefore came up with a special database for the registration of vulnerable people. In this database, people can register themselves and in the event of heat waves in the summer they will be checked up on every 48 hours with a telephone question and answer system to be used at every call.

This surveillance is very important since many people died because they were alone with nobody to check up on them, which is a general problem in the months of July and August in Paris, when the city is almost empty with most of its citizens being on vacation outside the city.

If the answers to the questions lead to doubts on the person's welfare, there will either be a social or a medical intervention, depending on the kind of answers. If there is no answer to the phone call at all, there will be also an intervention. If there is any kind of danger, relatives are contacted as soon as possible.

This system was a reaction to a great number of deaths in the summer of 2003 and already worked well the summer after.

Early flood warnings (Dept. of Gard, Nîmes)

Pascal Venzac, Météo-France
http ://www.meteo.fr

Floods can bring with them huge losses and a lot of damage. To prevent catastrophes it is important to do everything possible. The first stage in the event of an emergency is the early warning of floods or flash floods through constant monitoring.

Météo France constantly monitors river flows, river levels and other environmental aspects (rainfall etc.) of the river system of Southern France. These data are then systematically compared with historical databases to enable flood forecasts and are classified into three different precaution categories.

The system was only tested, but works well so far and is due to be adopted by around 40 cities and several private companies. It has also already helped to prevent certain damage.

Rescue Safety System of the City of Prague

Petr Beran, City of Prague
http ://www.cityofprague.cz

In 1995 the City of Prague developed a Rescue and Safety System as crisis management means.

The system's tasks are to integrate the capacities of the rescue system components, in order to co-ordinate emergency situations and disasters, to integrate recovery capacities after a disaster and to integrate the communication and warning systems of the city administration as well as the city population.

The Rescue and Safety System was tested in the flood in 2002 and proved to be enormously helpful especially in communication and evacuation tasks. It is not only responsible for handling typical emergency situations but also for helping the population through property protection, environment protection and the maintenance and rapid repair of infrastructure.

It has access to several tools for monitoring, communicating and warning tasks, such as the municipal camera system, the municipal radio system (TETRA), a warning and announcement system and communication between the operating call centres.

The central co-ordination point for all communication and actions in emergency situations and disasters is the city hall in the

City of Prague, which is assigned tasks by the Czech Ministries of Defence, the Interior, Transportation and the Environment.

Aspects of Crisis Management

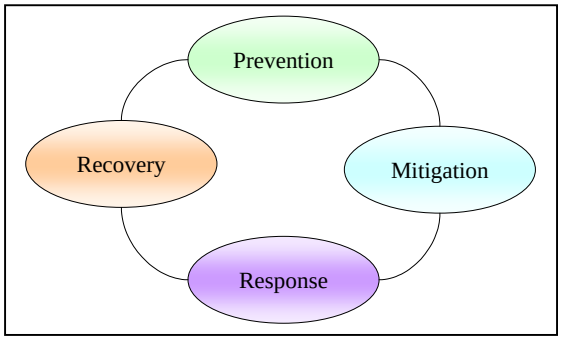
Prevention

Jeanette Viale & Steen N. Jensen,
City of Naestved

When defining prevention measures, it is important to analyse where the major risks for your city, institution or company lie, in order to define procedures that will help prevent possible accidents and catastrophes. Prevention therefore depends on the extent to which of a group of people are aware of risks and hazards, and prepared for crises, and disasters that are likely to take place.

Preparedness can help to minimise the adverse effects of hazards and to ensure timely, appropriate and effective delivery of relief or rescue through effective precautionary actions.

Prevention is one of four key elements for emergency situations and together with mitigation, response and recovery it can help reduce negative effects of emergency situations.



Prevention can take the form of social intervention, awareness training, modelling situations for early warning systems, setting up emergency working groups, preparing platforms and solid institutions for communication and data sharing and much more.

It should be possible to identify risk landscapes and to translate the data to other levels, such as local, regional, national or European risk landscapes in order to identify risks and enable related information and communication. In this way a certain risk culture can be established that can raise human awareness and help improve forecasts.

Mitigation : a wide range of tools or an overall approach?

Sylvie Vigneron, CERTU
http://www.certu.fr

Mitigation helps to reduce vulnerability in the event of an emergency. Mitigation is thus a preventive form of action before a catastrophe happens.

Technical and organisational measures have to be taken to reduce damage to people and goods. These must be taken at different levels, by home-owners and local authorities.

Infrastructure especially is highly exposed, be it because it is located in potential damage areas or because part of it is dependent on potential damage areas. In emergencies, chain reactions from damaged areas to non-damaged areas very often occur (domino effect) and lead to even less capacity in terms of response than should theoretically be available.

In order to reduce vulnerability of urban infrastructure, technical measures can be taken, such as making vulnerable equipment waterproof or ensuring that it is out of the reach of water. Organizational measures can also help to reduce damage during an emergency : e.g. footbridges during floods can help people gain access to their homes in order to save or rescue something.

In the field of urban development, new buildings in potential flood areas must only be allowed if they meet strict protection standards. For

existing buildings, local authorities can take advantage of redevelopment projects to implement preventive flood measures : buying old housing blocks, reselling the upper floors, but keeping the ground floor, and creating public open spaces.

Owners can also carry out work on their houses. They can adapt their homes in order to reduce their vulnerability by creating an emergency exit on the roof or by creating a place of refuge on the first floor. They can also adapt the use of space : no living spaces and no valuables on the ground floor.

Any action taken must be in coordination with all actors. This is also a sustainable approach, because it takes time to change a town, in order to take flood risks into account.

Response

Senio Rotondi, City of Siena
http ://www.comune.siena.it

Response is basically a form of communication. Response is how we handle a disaster, and requires efficient communication in order to improve awareness. Technology informs us of a disaster that has occurred, and enables us to communicate what is happening and what to do. In this sense, response is closely linked to mitigation and prevention. Communication means can be used to handle a catastrophic event, especially for CNI (Critical National Infrastructure) such as the local aqueduct.

Renovating a flood-damaged area

Petr Beran, City of Prague
http ://www.praha-mesto.cz

The flood of August 2002 caused substantial damage to the city's infrastructure as well as to municipal and private property : town mains, gas mains, district heating, sewage systems, drinking water and roads, were affected.

As the water subsided, repair of flood damage was started in accessible areas.

The flood considerably affected road traffic. Due to the flood and heavily damaged roads and houses, and in order to give priority to public transport, it was necessary to close roads in the affected areas and Prague bridges to automobiles. Special bus lanes were allocated to public transport buses on certain roads to enable them to run more smoothly. Radar surveys were started on sites with visible faults and on main roads, especially roads with tram lines, to identify potholes and other road defects caused by the flooding and washing away of sub-bases. Once the water subsided, the support structures of bridges were surveyed and found to be intact.

In addition to public transport operations, the most important task was to arrange for the restoration of the evacuated areas and to allow citizens to return to their homes.

Immediately after the flood, structural engineering reviews of flooded buildings were started in order to allow the rescue and damage repair crews to start working. Buildings were divided into the following three categories :

A. Undamaged buildings

B. Damaged buildings, inhabitable after reinforcement

C. Damaged buildings, permanently uninhabitable

Then the clearing and decontamination of the flooded buildings began. Interim dumping sites proved to be very helpful, since the waste removed from streets and houses did not interfere with the damage repair work. At the same time, roads and pavements were cleaned of the mud sediments. Later, the waste was moved from the interim dumping sites to the officially recognised and designated remote dumping sites.

The removal and subsequent disposal of perishable food, especial meat and dairy products, of which there were dozens of tonnes, from shops, restaurants, home freezers and refrigerators entailed serious problems. In relation to this, a certain shortage of protective clothing, aids, and particularly chloramine-based disinfectants was felt in the Czech Republic. However, sufficient amounts of disinfectants and protective clothing were promptly provided thanks to international assistance.

It was necessary to deploy many pumps to drain water from cellars. There was a lack of industrial dryers and suitable pumps to drain lagoons from lower areas, threatening a potential insect outbreak followed by the spread of infectious disease. All these problems were overcome thanks to international support.

Among other things, the Municipal Library and other archive buildings were flooded. The water-soaked books and archives were frozen to prevent their destruction, and they are gradually being renovated.

The City of Prague experienced neither casualties nor any increase in the incidence of infectious diseases due to the flood.

Thanks to the international material and humanitarian aid, international rescue teams and devoted volunteers from the entire Czech Republic, the basic functions of the affected areas were restored in a relatively short time.

SETRIC Agenda

Kick-Off Conference

Saint-Augustin (Ge),
24th-25th February 2005
thomas.rose@fit.fraunhofer.de

Workshop 1 : prevention

Naestved (Dk), 26th-27th May 2005
viale@naeskom.dk

Workshop 2 : mitigation

Lyon (F), 30th June – 1st July 2005
bernard.guezo@equipement.gouv.fr
sylvie.vigneron@equipement.gouv.fr

Workshop 3 : response

Siena (It), september 2005
miranda.brugi@comune.siena.it

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