

Emergency Telecommunications for European Citizens

An update on the existing situation, an overview of major challenges and some proposals for action

(in memory of the September 11, 2001 victims)

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Abstract

Emergency Telecommunications cover communications from citizens to authorities, between authorities, from authorities to citizens and between affected citizens in case of emergencies or disasters. This article is an updated version of the brief overview published in May 2005. It covers the existing situation in all the areas

mentioned above from a citizen's perspective and contains some proposals for action in view of ensuring further developments in this field. An abridged version of the first edition of this article was published in the June 2005 issue of the *European Journal of Navigation* (see <http://www.gitc.nl>)

Introduction

Communicating during emergencies, crises and disasters is not a new issue. Aeschylus writes that fire signals transmitted from mountain top to mountain top were used in the 12th century BC, to inform the city of Argos about the Greek victory over Troy within one hour after the event (Smyth, 1926, Uzunoglu 2006). In 490 BC, messenger Pheidippides run to Athens to bring news of the victory of the Athenians at Marathon. When he reached the agora some two to three hours later, he gasped "We have won" and dropped dead. The modern Marathon race commemorates his feat.

Today, news about major disasters take only a few minutes to reach major news networks and, immediately afterwards, millions of households in all continents receive live pictures in their living-room TV screen. In case of personal emergencies (accidents, fires, interpersonal violence, etc.) people can call emergency services to get help as soon as possible. However, this almost instantaneous transmission of information from distant disasters gives a rather false impression about the performances of modern emergency telecommunications, which still face major

challenges in order to ensure that in every emergency and disaster, affected individuals get timely and high-quality help.

Definitions. The UN defines emergencies as sudden and usually unforeseen events that

Major developments in the EU since May 2005

- Extension of emergency telecommunications definition.
- e-call declared officially dependant from quality of 112. The 112 becomes a Commission priority mainly following a petition EENA lodged with the European Parliament. 11 infringements against Member States introduced.
- Eurobarometer shows improvement of knowledge about the 112 by Europeans, although survey methodology is contested.
- At least two EU countries reorganize the whole 112 service chain.
- European Forum of Public Safety Emergency Telecommunications Officers established, albeit without citizens' component.
- Several European projects address the future of communications between authorities on the basis of WiFi solutions.
- Proposed recast of Community Civil Protection Mechanism provides for early warning and alert.
- ETSI mandated to work on Cell Broadcast for warning and alert.
- London Assembly report on 7/7 attacks, recommends citizen-centered approach of emergency planning and points to misgivings of communications within and between emergency services.

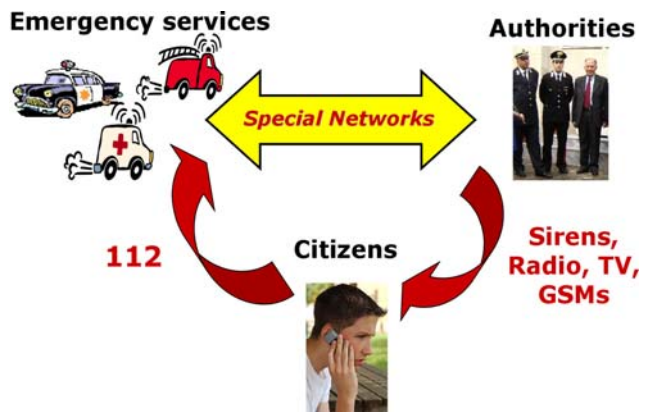
call for immediate measures to minimize their adverse consequences (UN-DHA, 1992). Logically, the term «*emergency telecommunications*» should thus refer to the telecommunications necessary to deal with emergencies. However, the International Telecommunications Union considers that emergency telecommunications are related only with major disasters (ITU, 2005). In 2002, the EMTEL Group of ETSI, established a new and more general definition (ETSI-EMTEL, 2004), based on earlier proposals by the European Commission (Alevantis, 2001, 2002).

This definition has also been endorsed by the 8th and 9th Global Standards Collaboration meetings (GSC, 2003, 2004). Thus, Emergency (Tele)communications can be partitioned into concerns covering (Tele)communications (Figure 1):

- from citizens to authorities and/or organizations providing emergency services,
- between such authorities,
- from such authorities to citizens and
- amongst affected citizens.

However, at the 10th Global Standards Collaboration meetings (GSC, 2005). the

Figure 1: Scope of emergency telecommunications.



term “citizens” in the above definition was replaced by the more generic word “individuals”, to cover *inter alia* tourists and people who may not have the status of citizen of a given state. Although this definition is certainly broader, EENA prefers using the term “citizens”, as this is stronger from a legal and constitutional point of view at national and EU level.

This article deals with the challenges linked with all aspects of emergency telecommunications from a citizen’s perspective and contains some proposals for action in view of ensuring further developments in this field.

Citizens communicating with emergency services

Existing situation. Thousands of emergency call-centres in the EU (the Public Safety Answering Points or PSAPs), receive yearly some 200 million calls from citizens in distress (CGALIES, 2002). This estimation correlates well with statistics on the leading causes of death and disease for the European region (WHO, 2000), which include heart attacks, strokes, road traffic injuries, self inflicted violence, drowning, interpersonal violence, fires, falls and poisoning. For all of these emergencies, the timely arrival of an ambulance can make the difference between life and death or permanent disability.

Timely intervention in the case of fires may reduce their cost which amounts to approximately 1% of Europe’s GDP (WFSC 2005). And although EU-wide statistics on criminal acts against life and property or about terrorist activities are not available, media coverage tends to consider such events as primary reasons for the increasing feeling of insecurity amongst Europeans, especially the mobile ones. This is a major

issue considering that every year more than 100 million Europeans cross the internal EU borders for leisure, business or simply because they live in cross-border areas. Over a period of five years, two thirds of the population of the EU (i.e. more than 300 million people) may be in another European country and may need emergency assistance (Räddningsverkets, 2002).

In response to emergency calls, PSAPs dispatch ambulances, fire-fighter teams or police squads to help the callers. However, only ±40% of the calls to PSAPs are “real” emergency calls and generate a response. The rest come from people seeking information, people testing their mobile phones, children playing etc. Furthermore, half of the “real” calls originate from mobile telephones and this proportion may be much higher in some countries. For 15% of mobile calls, emergency services have difficulty or are incapable of sending help because they lack, partially (8,75%) or totally (6,25%) relevant information about the location of the caller (CGALIES, 2002).

An estimate indicates that implementing caller location information could save some 5.000 lives annually and ensure economies of approximately 5 billion euros for emergency services (Nuttall, 2003).

The percentage of emergency calls resulting in no help may be even greater in case the caller speaks a foreign language. An evaluation of the 112 service-chain conducted in Portugal in the context of the preparations for the Euro 2004 football championship, showed that 20% of calls in French and 29% of calls in English do not receive help at all (DECO, 2004). This applies even to 15% of calls in Spanish and Portuguese – something that is consistent with the CGALIES estimations mentioned above.

In the EU, the single emergency call number is the 112 (the European 911). This number was established in 1991 and the relevant legislative provisions have been subsequently improved (EC Civil Protection site). Today, Article 26 of the Universal Service Directive (Directive 2002/22/EC) obliges Member States to ensure that:

- *The 112 is available in addition to any other national emergency call numbers, free of charge, to all end users of publicly available telephone services including*

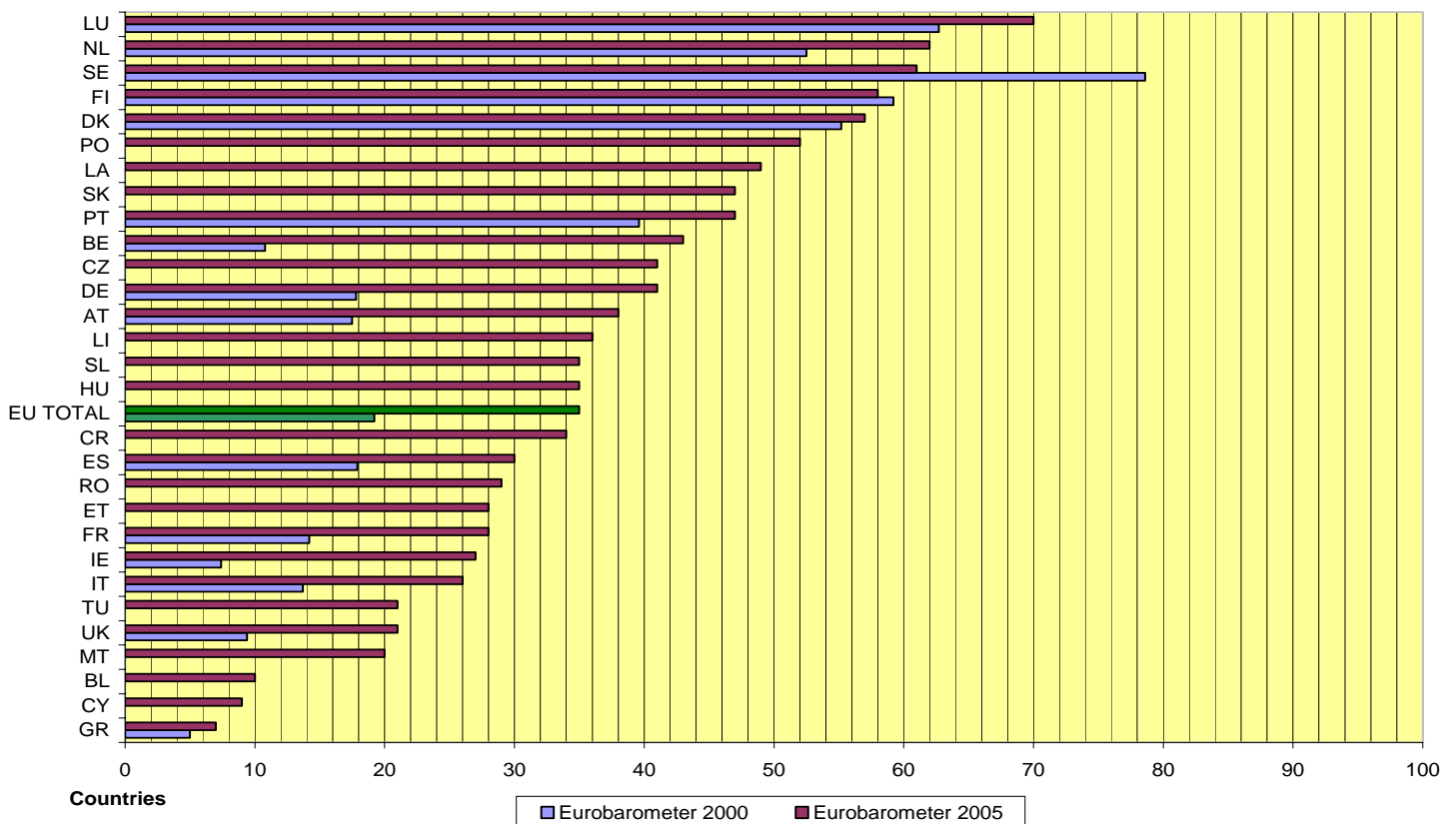
users of public pay telephones.

- *Calls to the 112 are appropriately answered and handled in a manner best suited to the national organization of emergency systems and within the technological possibilities of the networks.*
- *For all calls to the 112, public telephone network operators make caller location information available to authorities handling emergencies, to the extent technically feasible.*
- *Citizens are adequately informed about the existence and use of the 112.*

Article 7 of the same Directive also stipulates that Member States shall “take specific measures for disabled end-users in order to ensure access to and affordability of publicly available telephone services, including access to emergency services, (...) equivalent to that enjoyed by other end-users”.

Available information from the European Commission and the EENA shows that the implementation of the 112 within the EU is still quite erratic. Most importantly, **the 112 is still unknown to the majority of Europeans**. A Eurobarometer survey conducted in 2000 (Eurobarometer, 2000) showed that only one in every five citizens would call the 112 if faced with an

Figure 2: Knowledge of the 112 by European Citizens (Eurobarometer 2000, 2005)



emergency while visiting another EU country (Figure 2). In 2005 the European Commission conducted a new survey about the knowledge of the 112 (Eurobarometer, 2006) which showed that "in the EU 25 overall, more than one in three respondents were able to cite 112 as the single emergency number to call from any location in the EU against one in five as measured five years ago". However, by comparing the question asked in the context of the 2000 survey with the two questions asked in the context of the 2005 survey, it is evident that the improvement, could at least partly, be attributed to the guidance of the questioner rather, than to the real knowledge of the responder.

From both the surveys the situation is quite preoccupying for Germany and the UK as tourists from these countries represent respectively 31% and 26% of the EU total (with France, The Netherlands, Italy and the Scandinavian countries following suit) (Schmidt, 2005). With knowledge of the 112 by only 41% of Germans and 21% of British, this means that 15,1 million of German and 12,1 million of British tourists are every year unaware of the 112 when on holidays¹.

Answering and handling emergency calls is highly problematic in several Member States because implementation has not been ensured on the basis of commonly accepted standards. Some countries (Denmark, Finland, the Netherlands, Portugal and Sweden) have established the 112 as the single emergency call number at national level (Eurobarometer 2006). In some countries calls to the 112 are answered in several languages but in others only in the spoken regional language. In some countries calls are handled by multidisciplinary 112 call centres, while in some, calls are routed to the call centres of one emergency service, which may not be always able to transfer the calls to the appropriate emergency service (EENA internet site). Finally, caller location information (especially for calls from mobile telephones) is available to the emergency services of very few Member States and regions. Citizens cannot rejoice either when they know that very few countries have established legislation

concerning obligatory minimal response and intervention times in emergencies, while only Portugal has evaluated the quality of the complete 112 service-chain (DECO, 2004).

Using the 112 <i>What every citizen should know</i>	
When to call the 112	<p>Call the 112 only in real life-threatening emergencies like:</p> <ul style="list-style-type: none"> ➤ Serious medical problems (unconscious person, important injuries, chest pain, seizure, bleeding) ➤ Any type of fire (house, car, business) ➤ Life-threatening situations (crimes, fights, people with weapons, robbery in progress, etc) <p>Do not call the 112:</p> <ul style="list-style-type: none"> ➤ To test your mobile phone - you may block a real life-threatening emergency call ➤ To laugh at the operators or to just hang up - respect operators who work under stress to help save lives, do not block real emergency calls by blocking lines ➤ For non life-threatening emergencies or non-emergencies like property damage accidents, break-in to vehicles, theft of property, vandalism - especially when the suspect is gone - cars blocking the street. Call directly the local police. ➤ However - when in doubt, dial it out - 112. You could save someone's life !
Stay calm	Stay safe - avoid having an accident yourself.
What to say	<ul style="list-style-type: none"> ➤ Where is the assistance needed (location) ➤ Your name and telephone number ➤ What happened (nature of the emergency) and if it is happening now ➤ Who needs help or is involved and how many (victims, suspects, etc.) ➤ Why is the emergency happening (i.e. depression) and any obstacles to the arrival of emergency services ➤ Are weapons involved ? (knives, hand-guns, automatic weapons, suspected bombs or explosives)
Stay calm	<p>Wait for instructions. And follow them carefully - your assistance could mean the difference between life, death or serious injury</p> <p>Do not hang up until the operator tells you to !</p>
Be prepared	<ul style="list-style-type: none"> ➤ To launch a 112 call - observe and exercise mentally ➤ Get training in your company or in the context of your community as a first aid helper or as a first responder - you will be able to help yourself and your neighbours ➤ Remember - prevention is always better and more efficient. ➤ Report problems with the use of the 112 at http://www.eena.org

¹ Calculations based on population data for 2004, tourism data for 2003 (EU-25) and knowledge of the 112 data for 2005 (EU-25).

Improvements needed. Member States need to ensure that all EU citizens know about the existence and proper use of the 112. Unfortunately, although this is a legal obligation, some countries which run separate emergency call numbers hesitate to publicize the 112, fearing that all emergency calls will then be directed to the 112 call centres, which often have limited capabilities. However, a better informed user population will ensure less false calls to the PSAPs, resulting in the optimal use of available resources. Member States must also ensure that all the EU territory is properly covered by mobile or fixed operators. Several countries justified their decision to reduce telephone booths on the basis of the expanding penetration of mobile telephony – but several remote areas of the EU are not (well) covered by mobile operators and people in distress may face “network not available” messages when calling the 112.

On another level, emergency services should ensure that a common front-end handles all incoming emergency calls to the 112. Two types of front-ends have been implemented in the EU. In one, independent dispatching centres run by the telecommunications operator (e.g. like in the UK and Ireland), transfer emergency calls to the PSAP of the appropriate emergency service(s). The second type is based on the use of common coordination centres which incorporate representatives of all the emergency services, or are run by independent “specialised” emergency services (e.g. Sweden, Denmark, Spain). Of course the option of keeping separate emergency call numbers and ensuring that one of the corresponding PSAPs acts as the 112 front-end can still be practiced, but experience has shown that such a solution creates more problems than it solves (tensions between emergency services, allocation of resources, technological incompatibilities, etc.).

Emergency services should also ensure that the call to the 112 is “appropriately answered and handled”. This includes firstly the possibility of multilingual support. Answering emergency calls in many languages does not necessarily imply the use of multilingual operators. In France, operators can establish a three-way online conference with the caller and an on-duty interpreter, accessible via mobile phone (FNTU site). Implementing multilingual

support depends more on political will rather than modern technology – although the latter can clearly be of help.

Appropriate answering and handling of calls also involves the use of standardised verbal communication protocols. The Portuguese evaluation clearly demonstrated that operators may not follow a standard protocol when answering emergency calls (e.g. sometimes they hung up before getting the exact name and address of the caller). A workshop on the effective handling of emergency calls held in 2002 in Sweden (Räddningsverkets, 2002) demonstrated that the training requirements of 112 operators vary from country to country (in Finland for example training lasts 57 weeks for a fully operational operator). This, also, is clearly a matter of political will.

Improving the quality of the 112 service-chain implies the establishment of a standardised minimal intervention/response time. Today, few countries (Netherlands, United Kingdom and Germany) are known to practice minimal intervention/response times in emergencies (different for urban and rural areas). Establishing a pan-European minimal intervention/response time will certainly influence the long term global costs of emergencies and may be worth the additional resources required to implement it. This was one of the conclusions of the 2nd European 112 Conference and Exhibition (EENA, 2004), and it will be again on the agenda in the context of the upcoming 6th European Seminar in Emergency Medicine in November 2006 (JEMU site).

Member States should also **implement caller localisation**. This legal obligation is already met in some but not in all the Member States, as it is not a simple matter. In some cases the technology of the existing call centres is too old to handle location information. In other cases progress is hampered because of incompatibilities between existing and required products (e.g. GIS, localisation techniques). The problem seems to concern mostly the infrastructure of the emergency services rather than the capability of operators to transfer location data. Back in 2002 the European Commission requested ETSI to develop a common interface between operators and emergency services to facilitate the transmission of localisation data, but this work has not yet been

completed. In 2005-2006, the Commission has launched several actions in the field of caller localisation (see below *Recent developments*).

Finally, another issue is the implementation of overall quality criteria and the evaluation of the quality of the 112 service-chain. Until this day only Portugal has conducted such an overall quality evaluation. EENA believes that the quality of the 112 service-chain will improve only when the European Commission starts conducting periodic quality evaluations by independent organisations in all the Member States. Special care must be taken for people with hearing and vision disabilities who need special terminals in order to be able to make emergency calls. The needs of increasing numbers of people accessing the PSAPs over the internet (VoIP) must also be addressed.

From all the above it is evident that improving the 112 service-chain is a complex issue requiring the involvement of many actors, especially political authorities. Technology seems not to be the major issue, although it plays an important role in the equation. The European Commission has a very important role to play by obliging Member States to fully implement legislation in force. Failing to improve the quality of the 112 could mean that the establishment of the 112 reduces in fact the level of safety of citizens using the 112 in comparison with citizens using the national emergency call numbers. Take for example the e-call initiative which aims to equip by 2009 all new cars in the EU with the capability of automatically calling the 112 in case of accident (IP/134, 2005). Buying the new gadget does not necessarily increase the chances of survival in case of car accident when the injured driver will be waiting for help which will never arrive, because the PSAP will not be able to process the automated call received.

Recent developments. In 2004 EENA lodged with the European Commission a series of complaints against several Member States. In 2005, on the 14th anniversary of the

introduction of the 112 and following the advice of the European Ombudsman, EENA introduced a petition with the European Parliament (EENA, 2005, 2006). This, in combination with pressure from the car manufacturing industry, led the European Commission to formally recognize in September 2005 the importance of the emergency services component of the 112 service chain for the implementation of the e-call system (COM/431, 2005; IP/1137, 2005). Then, in October 2005, the European Commission organized a conference on the implementation of the 112 (IP/1239, 2005; Speech/596, 2005) during which Commissioner Viviane Reding declared that the 112 had become a Commission priority.

The Commission also accepted publicly that it could not launch a pan-European information campaign because it was not satisfied with the implementation of the 112 by Member States (something it also accepted in the European Parliament, see Ries 2006). In April 2006 the Commission opened infringement proceedings (IP/464, 2006; MEMO/158 2006) against 11 Member States (Greece, Ireland, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, the Netherlands, Portugal and Slovakia) for non transmission of caller localisation to emergency services. In parallel, the Commission decided to postpone infringement proceedings against Italy and Belgium concerning the answering and handling of calls to the 112 because these two countries were in the process of upgrading the whole emergency chain.

Unfortunately, several official documents and reports published by the Commission contain inconsistencies (most striking of which was a mistake on the Commission's 11th report on the implementation of the telecommunications regulatory framework concerning the implementation of caller localisation for mobile telephones in Belgium, see EENA 2006). And the Commission repeatedly declares itself incompetent to implement the full 112 service chain as it has not authority over emergency services.

Communications between emergency services

Almost every emergency arising from everyday accidents, requires the intervention of two or even three emergency services. Ambulances must help

victims and police has to regulate traffic around the scene of the accident, or must start investigations in case of criminal acts. Fire-fighters are often required to liberate

victims from wrecked cars or from debris. They are the real protagonists in the case of fires – where the other emergency services are also required. All these interventions require communications between the emergency services involved. This becomes imperative in case of major incidents and disasters covering wide areas and necessitating the intervention of emergency services from different local or regional authorities or even (in the case of disasters with a European or international dimension) of multinational, multidiscipline teams.

Today it is well known that intercommunication between the different emergency services in most of the EU Member States (in fact all over the world) is impossible in case of large scale joint operations in the context of major incidents or disasters. The main reasons given are the use of old radio systems operating in different frequency bands, the difficult or even impossible intercommunication between the relatively newer digital communication systems TETRA, TETRAPOL, GSM-BOS etc. as well as the lack of common protocols and conventions at EU level for the communication between emergency services (TETRA, TETRAPOL, GSM-BOS sites).

The author does not consider himself to be a specialist in this field, as he lacks the appropriate technical knowledge. He has noted however, that the publicly available documents with lessons learnt from the September 11, 2001 disaster in New York, and the July 7, 2005 attacks in London, strongly underline the fact that the response of emergency services was hindered by multiple failures of communication systems and processes, as well as by technological limitations. The same documents stress the fact that emergency services urgently need improvements in telecommunications and technology capabilities to be able to face efficiently such events in the future (McKinsey, 2002) (Commission 9/11, 2004), (London Assembly, 2006). What would be the case if a similar disaster struck other EU countries? What about civil protection units coming together on the scene of a major emergency or disaster within or outside the EU in the context of the – soon to be upgraded – Community Civil Protection Mechanism (EC Civil Protection site)? Fortunately, the EU has taken action in this

field, although this has been done with considerable delay². In 2001, the Council decision establishing the Community Civil Protection Mechanism provided (article 4b) that the European Commission shall «*establish and manage a reliable common emergency communication and information system (CECIS) to enable communication and sharing of information between the monitoring and information centre and the contact points designated for that purpose by the Member States*» (Decision 2001/792/EC). The CECIS was partly operational in early 2005.

In parallel, a report by a Group of Personalities in the field of Security Research published in 2003 by the European Commission, recognises the fact that a European Security Research Programme (ESRP) should focus amongst others «*on interoperability and connectivity as key elements of cross-border and inter-service cooperation*» (EC – Security, 2003). In this context the EU has launched such a specific European Security Research Programme with the interoperability of control and communications systems amongst its main priorities (MEMO/116 2005). Furthermore, until recently emergency services have not been able to organise themselves at EU level in order to speak with one voice and establish their current and future requirements concerning emergency telecommunications. Since 2002 several attempts by unofficial groups of Public Communications Officers have been made to establish a common view and procedure (ETSI, 2005). Finally, in June 2006, the Forum for Public Safety Communication Europe was launched with the financial support of the 6th Community Framework Programme for Research and Technological Development (PSC Forum site).

² «The Council of Ministers has repeatedly underlined the necessity for using data banks (1987), advanced telecommunications systems (1989, 1990) including aerospace resources (1990-1). The Council also considered desirable a system to make more effective use of existing specific information and to improve technical co-operation between rescue teams helping in emergencies outside their own countries or regions (1990-1). In 1994 the Council considered that the experience acquired in data transmission between Member States had demonstrated the need to set up a committee of users within the existing permanent network of national correspondents, arrangements to guide any new initiative in this field (1994)». See Council Resolutions in the field of Civil Protection - Developments since their adoption, Commission Staff Working Paper - SEC(2000)136 dated 24.01.2000 (EC Civil Protection site)

Several elements compromised the move of emergency services to the Information Society age and the progress of several projects aiming at the establishment of the emergency telecommunications environment of the future (MESA site). The abovementioned lack of a common approach from the professional users was one of them. Another, was the fact that national industries have been trying to set the agenda in this field while unsuccessfully trying to impose it at the EU level. Furthermore, several issues concerning the efficient and effective coordination of emergency services on the basis of interoperable telecommunications systems are beyond the scope of standards setting bodies or technological fora. They include amongst others the use of common verbal and non-verbal communication protocols and conventions, the implementation of quality criteria for the services provided and the obligation for periodic evaluation by independent bodies.

The creation of the PSC Forum will certainly contribute to the establishment of a better understanding between industry and emergency services and will help the outcome of several EU-funded projects aiming at the use of TCP/IP and WiFi technologies by emergency services. Such projects include the following: U-2010 (Ubiquitous IP-centric Government & Enterprise NGN Vision 2010), ORCHESTRA (Open Architecture and Spatial Data Infrastructure for Risk Management), WIDENS (Wireless Deployable Network System), WIN (Wide Information Network) and DeHiGate (Deployable High Capacity Gateway for Emergency Services). Of course well established older technologies will continue being installed for some time but WiFi systems will increasingly challenge them (see for example the new Statewide Wireless Network to be installed in the State of New York - SWN site – and the Citywide Mobile Wireless Network, to be installed in New York – New York City, 2006).

Authorities communicating with citizens

In case of an imminent disaster (approaching chemical or nuclear cloud, threat of a terrorist attack, upcoming tsunami or extreme weather conditions, etc.) authorities need to rapidly alert large populations and guide them to safe areas until the danger is over. Several international conferences on early warning systems for the reduction of natural disasters, have confirmed that effective early warning depends upon multi-sectoral and interdisciplinary collaboration among all concerned actors (EWC'98, 1998; EWC II, 2003; EWC III, 2006). Several major disasters hit the world in the last decade and unfortunately many people were lost because of lack of efficient early warning systems.

Warning systems and practices vary in the different countries of the EU. Siren and other audible alarm signals are provided for in several cases (safety in the workplace, nuclear and chemical plants, wartime alerts, dam-breaking alerts, etc.) and they are not standardized or harmonized. Test arrangements for such systems also vary between Member States. Additionally, Member States and local authorities have experimented with various new systems (intelligent sirens, mobile telephones, RDS

car radios) but no generalised solution has ever been proposed or implemented.

At the same time EU citizens are clearly concerned about early warning and alert. According to the European Commission (Eurobarometer 51.1p 1999) a significant percentage of EU citizens (65,2%) feels unsafe when in another EU country for various reasons (they do not know the risks in the country; do not speak the language; feel that the emergency services less well organized; feel that signals and instructions are different). It is evident that special alarm arrangements are needed for non-residents in case of many types of potential accidents or disasters. Such an alarm may concern cross-border accidents or non-residents present in tourist areas. The possible risks include nuclear power plants, chemical factories (Seveso and non-Seveso), transport of dangerous goods (by highways, ports, railroads, pipelines), dams, areas prone to avalanches, landslides, floods, extreme weather conditions and volcano eruptions as well as hotels and other public places (fire risk, terrorist attack etc.). With millions of tourists from the EU visiting every year high risk areas all over the world, this issue does not only concern the EU Member States but all countries accepting large numbers of EU tourists, as

well as countries outside the Union the citizens of which visit Europe every year.

The EU has already been made aware of the problems but without taking concrete action. The issue has been extensively discussed in the context of the Civil Protection activities mainly at a workshop on the technological aspects of modern warning and alarm systems (organized by the Finnish Ministry of Interior in the context of the major project on the information to the public - see MoI Finland, 2000), as well as in the context of the major project entitled From Emergency to Crisis (MoI Germany, 1999). The main conclusion from these actions was that alarm signals should not be linked with the type of the emergency (nuclear, chemical, natural etc.) but with the behaviour expected by the population. More specifically one signal should induce citizens to *«Go indoors and stay there»* while another should incite them to *«Evacuate closed spaces»*. These and other projects also concluded that warning and alert should be provided through multiple vectors (Volkmar Held, 2001), i.e. use of audible alarm signals and modern telecommunications networks (mobile telephones, pagers, RDS, digital radio and television, etc.) especially for people with disabilities. Supplementary information to the public could then be conveyed through classic communication channels (radio, television) or modern networks (mobile telephones, internet, etc.).

On the other hand, several pieces of EU legislation cover the obligation for the provision of warning and alarm. Unfortunately, they fall under the responsibility of different policy areas and consequently their implementation remains uncoordinated. Directive 92/58/EEC on safety and health signs at work applies to safety in the workplace (in the policy area of Employment and Social Affairs). In its Annex VII it provides for a continuous acoustic signal for evacuation³. It also provides in its Annex I for regular check of the signalling devices. As the leisure area of one person can be considered to be the work area of another, this directive could be

applied in general for the warning and alarm of people in public places.

In another context, the Seveso II Directive 96/82/EC, which applies to a subset of chemical plants (in the policy area of Environment), provides for the inclusion of the organisation of alert and intervention around the so called Seveso installations (Annex II). It also provides that emergency plans should include arrangements for early warning of incidents, alert and call-out procedures, as well as arrangements for providing the public with specific information relating to the accident and the behaviour which it should adopt (Annex IV).

In another field, Directive 89/618/Euratom, which was adopted after the Chernobyl nuclear disaster, provides for the information of the public in case of radiological emergencies. This directive which applies to all types of nuclear installations and transport (and falls within the policy area of Energy) provides for information about emergency measures envisaged to alert, protect and assist the general public in the event of a radiological emergency (Annex I).

Finally, Directive 2002/20/EC regulating the attribution of licenses for the operation of all types of electronic networks and services provides that Member States may establish specific terms for operators concerning the use of networks *“during major disasters to ensure communications between emergency services and authorities and broadcasts to the general public”*. A special decision (Decision 676/2002/EC) covers issues pertaining to the allocation of radio spectrum (both these legal acts fall in the policy area of Information Society).

Consequently, the EU may use these acts as a solid legal basis for a European initiative in the field of warning and alert. Such an initiative would establish a legal obligation to warn, alert and inform citizens, in their own language, in case of an imminent disaster, by all available telecommunication means (radio, TV, GSM, siren, etc.). Information in this context would also cover the issuing of instructions about expected behaviour in all possible cases of major disasters (nuclear, chemical, natural, terrorist, ...) even the obligation to ensure (simple and comprehensive) training well before the disaster. Finally, the initiative could ensure the implementation of quality criteria for the service provided.

³ However, this is in contradiction with the ISO 8201 standard (Acoustics - Audible Emergency evacuation signal) which provides for a three pulse temporal pattern followed by an off phase.

Additional justification for such an initiative may be provided by the widening perception of the terrorist threat, the natural risks present in the European region (floods, storms, avalanches, etc.), the numerous EU citizens moving around feeling unsafe, the need for the approximation of legislations and the conclusions of several projects financed by the Community budget in the fields of Civil Protection, Research, Information Society, etc. The initiative may aim at the generalised use of the two existing audible signals (one for evacuation, one for confinement), the testing of warning systems all over the EU on the same day (e.g. on the 11th of February which links with the single European emergency call number 112), the implementation of multilingual capabilities in special dissemination systems (RDS and digital radios, digital TV's, cell broadcast of messages), the coordinated use of communication networks for warning and alert of people with disabilities and the follow-up information of populations concerned. It could also provide for specific measures for tourists and other non-residents as well as for the collaboration with broadcasters and NGOs (environmental, search and rescue, medical, etc.) who play a key role in warning and informing the public. The initiative could be periodically evaluated in view of taking further actions at Community level.

Of course, launching such an initiative means that several Commission services need to pull their act together and think in a creative way with their priorities aimed at serving the citizens. Maybe this is easier said than done – but the political clout of such an action would certainly be very important for the college of the Commissioners. Fortunately, the proposals of the European Parliament in the context of the recasting of the Civil Protection Mechanism (Decision 2001/792/EC) include

Communication between affected citizens

In case of personal emergencies and/or major incidents or disasters, citizens expect above all to be offered the possibility to communicate with their relatives, either to inform them that they are well or to get reliable information about their condition. However, network availability and capacity have proven insufficient in several cases of major incidents and disasters to ensure

Emergency Telecommunications and Radio Amateurs

An essential component not to be ignored

According to the International Amateur Radio Union (IARU)¹ assistance in emergency and disaster situations has a long tradition in the Amateur Radio Service. In recent years, the importance of this activity has increased further and has in fact also become a major argument in the defence of the Amateur Radio bands and in the protection of this valuable resource against potential interference by new technologies. In some countries, the role of the amateur radio service in case of emergencies and disasters is well established and organized or even institutionalised. In a large number of countries, however, hams can perform this important public service only in an improvised manner if and when a disaster occurs, something that may seriously affect the efficiency of what radio amateurs can contribute.

Radio amateurs have contributed over the years over situations covering all the aspects of emergency telecommunications mentioned in the main article². They have been requesting assistance in case of accidents occurring in remote or isolated areas. They have facilitated the communication between emergency services in areas totally devastated by major disasters³. They have helped convey the message of authorities to remote or isolated regions and finally they have ensured that relatives from / at isolated areas were kept informed about the well-being of their relatives and friends. Using classical or satellite enabled equipment, radio amateurs have proven themselves indispensable in emergency and disaster situations.

¹ See <http://www.iaru.org/index.html>

² See <http://www.rsgb.org.uk/emergency/newsboard.htm>

³ See <http://www.aricc.org/>

the obligation for early warning and alert of citizens in disaster prone areas. However, one should wait and see if these proposals will be taken up by the Council in the final version of the adopted new Decision.

In 2005, the European Commission mandated ETSI to work on the implementation of Cell Broadcast (CB) for GSM networks, in the context of ETSI's EMTEL group (INFSO-COCOM site). Furthermore, CHORIST, a specific EU-funded project addresses the issue of population warning and alert on the basis of information from heterogeneous sensors and/or multiple agencies.

such contacts. Instead, special telephone numbers may be established for relaying information through the access of centrally constituted files with names of victims and/or survivors. Additional initiatives may also include the information and training of citizens (especially youngsters, see [OASP site](#)) about the behaviour they are expected to adopt in case of such events.

Important horizontal developments

In May 2006, Senator Hillary Clinton proposed a new Federal Interoperable Communications and Safety Act in the USA (FICS, 2006). This act provides for a new Undersecretary for Emergency Communications and an Office of Emergency Communications. The act mandates a National Emergency Communications Strategy to achieve redundant, sustainable, and interoperable emergency communications systems and requires State and local governments to develop State-wide Interoperable Communications Plans. It provides for a national assessment of the interoperability capabilities at all levels at least every five years, as well as the creation of an Emergency Preparedness Centre, and the establishment of a National Alert System within a 3 year deadline. This is the first time emergency telecommunications receives such a high priority and the EU should implement something similar taking of course in account Europe's legislative and administrative traditions and structures.

In June 2006, the London Assembly published a report on the response to the bombings of 7/7/2005. The Report dealt in particular with communications issues and pointed out that *«while the people involved performed outstandingly, the emergency communication systems and equipment that were supposed to support them did not»*. Furthermore the report also pointed out that *«there is an overarching, fundamental lesson to be learnt from the response to the 7 July attacks, which underpins most of our findings and recommendations. The response on 7 July demonstrated that there is a lack of consideration of the individuals caught up in major or catastrophic incidents. Procedures tend to focus too much on incidents, rather than on individuals and on processes rather than people. Emergency plans tend to cater for the needs of the emergency and other responding services, rather than explicitly addressing the needs and priorities of the people involved»* (London Assembly, 2006).

Conclusions and proposals

Emergency telecommunications concern above all the safety and security of citizens. With the mobility created by the internal market within the EU, the European Institutions should make serious efforts to ensure greater harmonisation at EU level in this field. Work already undertaken should be encouraged and continued, while action should be initiated to cover new needs. Above all, the EU should declare its strong political commitment for improvements in this field and declare it a priority, something that is not the case today. Ensuring better and reliable emergency telecommunications in the EU means that procedures for the development of requirements and processes in specific areas need to be officially endorsed through multidisciplinary, multi-sectoral, multi-services groups representing governments and working with the interests of citizens and victims in mind. Improving the 112 service chain, establishing rules for the interconnection and the interoperability of systems used by emergency services, ensuring that all EU citizens (residents and travellers alike) will be promptly warned in case of an imminent disaster, are all highly political issues.

As a first step, the Council of EU Ministers should consider the issue in view of formulating a clear political mandate at the highest possible level. In parallel the European Parliament can also play a prominent role by putting this issue on its agenda. Emergency telecommunications should be treated in a horizontal, interdisciplinary inter-sectoral and inter-services way within all European Institutions (Parliament, Commission and Council). The objective should be the adoption of binding legal acts for the organisation, intercommunication, and interoperability of emergency telecommunication services and systems for all emergency services / authorities, functioning in the context of commonly agreed quality levels. Some EU countries (e.g. Belgium) have already established structures and systems and are moving towards this direction. In other EU countries (UK, Netherlands, Scandinavian countries, Germany) providing high quality emergency services is already a legal obligation. Of course, given the investments involved and the rapid technological advances, decisions should be based on sound analyses of costs and benefits for

citizens, emergency services and related industries.

Should the EU consider the creation of a special agency for Emergency Telecommunications? Should Emergency Telecommunications for European Citizens be one of the priority themes to be dealt with in a not so useless Civil Protection Agency? Should the Commission set up a special task force to deal with Emergency Telecommunications in a horizontal and holistic way? These are questions to be replied at the highest political level, in view of the EU's pledge to serve its citizens.

Finally, the field of Emergency Telecommunications needs its own big periodic conference and exhibition where administrators and politicians, professional and final users, emergency services and private companies will be able to discuss their experiences, their needs and their products, in a horizontal and neutral way. Such an event could constitute a common discussion platform which will set requirements and help exchange best practices to enable the field to develop further in order to better serve citizens and the idea of Europe.

When in danger, call for help
the single European emergency call number

112

THIS NUMBER CAN SAVE YOUR LIFE !

Report problems to the «Citizens'Corner» at

www.eena.org

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