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Direction de la défense et de la sécurité civiles



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FINAL REPORT

**Major Project on comparing the methodologies
for the assessment and the management of
the three priority risks :
the seismic risk, the urban risk and the CBRN risk**

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C O N S E I L

Major project comparing methods of evaluating and managing seismic, urban and CBRN risks

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Major project comparing methods of evaluating and managing seismic, urban and CBRN risks

CONTENTS

	<i>Page</i>
Aknowledgements	1
Introduction	4
Guidelines and Recommendations regarding the CBRN Risk	6
Guidelines and Recommendations regarding the Seismic Risk	10
Guidelines and Recommendations regarding the Urban Risk	13
Final Recommendations	20
Conclusions	26
Result of Survey (Appendix 1)	27
Summary Table of the Various European Risk Research Programmes	30

Major project comparing methods of evaluating and managing seismic, urban and CBRN risks

Introduction

The Major Project aims at comparing the methods in evaluating and managing seismic, urban and CBRN risks. The objective is to increase awareness of the Civil Protection authorities from each Member State regarding the three risks studied.

It has been an opportunity to share lessons learnt and to compare the operation methods in order to reduce the consequences of disasters. Moreover the existing methods have been studied within the scope of the experience feedback : recommendations have then been defined addressing the Member States' Civil Protections, they include the operational practice and the latest scientific research work relating to these specific fields, making sure that the two separate phases have been well integrated, first the risk evaluation then the risk management.

The Project aims also at improving the level of the relief operation managers and of the Civil Protection experts in their preparation for tackling the risks studied, making clear for each risk the methods for evaluating and for managing. The experts and the participants in the two workshops that have been organised during this study have defined practical recommendations. They have been validated by the Steering Committee then circulated to the Civil Protection Units among the Member States and the EEA.

During the Project, the Steering Committee has met three times and has got together the European Commission, France, Germany, Italy, Spain and Sweden. The meetings took place :

- in Aix en Provence on July 1st 2004
- in Brussels on May 24th 2005
- in Aix en Provence on May 9th 2006

During the meetings, the Steering Committee has been able to validate the questionnaire that has been circulated to all the Member States, to validate the strategic orientations of the Project and to validate the recommendations of the Experts Committee as well as the final recommendations.

Furthermore, during the first Experts Committee (November 3-7, 2004) the Experts from the Member States and from the EEA have got the opportunity to share experience and knowledge in the field of the seismic risk, of the urban area related risks as well as of the threats or attacks in the field of CBRN risk.

The first guidelines regarding lessons learnt and methods used in each state was also the outcome of the first meeting.

The EEA's and the Member States' experts who participated in the workshop have been nominated as « the Project Contact Person » to make easier the exchanges between each State and the Steering Committee and to provide the committee with material relating to the position of his country whether the evaluation or the management of the three risks is considered.

The outcome was a better knowledge of the users' needs ; it made easier the implementation of new technologies for assessing and managing the risk.

The second Expert Committee (November14-17, 2005) gave an opportunity to :

- update and share the analysis, experience and methods used in each of the Member States and the EEA, in the field of the seismic risk, the urban areas related risks and the CBRN threats or attacks, according to the Steering Committee validations.
- Validate the common guidelines and recommendations at the Community level for the three risks studied.

The final recommendations of the Project have been discussed and validated during the Steering Committee that took place in Aix en Provence on May 9, 2006.
They are presented hereinafter.

GUIDELINES AND RECOMMENDATIONS REGARDING THE CBRN RISK

Foreword

CBRN risks include:

- the consequences of atomic fission
- exposure to ionizing radiation
- pathogenic effects of micro-organisms or their toxins
- toxic effects of certain chemical products

Nuclear, radiological and chemical risks have common characteristics:

- occurrence linked to industrial operation creating accidental risks
- the consequences are identical: bodily injury due to ingestion, inhalation or skin contact
- the use of these agents as part of a terrorist attack may disrupt operational plans laid down.
- These risks create situations that require rapid responses, mortality being in direct proportion to the length of exposure to the risk.
- Few countries have their own sufficient emergency means. Complementing and coordinating means are a priority objective.
- Feedback is sparse but vital.
- Technological advances are of paramount importance in measurement, identification and modelling instruments, as well as research into neutralising agents and protective clothing.

Biological risk

- at the origin of potential health disasters State and even community management is required due to the fact that biological risk knows no frontiers.
- the new pathogenic agents with endemic potential may affect a huge population.
- pooling resources of vaccines, medicinal products and biological surveillance networks enables public health schemes to be planned.
- The provision of new technologies mainly applies to medical research which focuses on discovering new gene therapies and rapidly creating vaccines, antibiotics and anti-viruses.
- The form and content of organisational communication is extremely sensitive and must be coordinated at European level.

Preventive measures

The emergence of new health crises linked to new pathogenic agents with endemic potential means that safety measures have to be planned by the State.

The measures for preventing, treating and limiting the endemic or toxic zone affect a huge population. The disorganisation of social life and potential mortality rate imply drastic limits on individual freedom.

European and international cooperation is necessary because the risk knows no limit. It is necessary to pool resources of vaccines, produce and secure medicinal products. Creating a network of biological surveillance laboratories enables the “health boundaries”, which change considerably, to be monitored.

Planning

In terms of CBRN risks, because they have industries, consume energy, transport dangerous materials, etc. each country draws up its own specific emergency plans the confidentiality level of which ranges from “non-classified” to “secret” or even “top secret”. Only nine States have specific legislation.

Training policies are implemented at local, regional and national level except for Portugal that has neither specialised personnel or installations. Whilst detection and decontamination staff and resources appear to meet requirements, mass decontamination units in six countries have not been equipped. The training of specialist staff is ensured by the General Directorate for Civil Protection in 13 out of 21 countries.

Finally, as concerns institutional players, the rules vary from country to country; their identity depends on the type of danger and the economic, geographical, political or other sector affected by the threat, the organisations or non-governmental agencies, ministerial institutions responsible for the sector and interrelated responsibilities.

Informing the public

Informing the public, which is particularly important given the circumstances, must be coordinated at European level.

It is necessary to train the public from as early as school age. Due to the fact that these risks are in the process of emerging, no mass culture for this type of situation yet exists. The spontaneous behaviours of the public faced with a sudden toxic environment will be totally unsuitable. It is for this reason that crisis communication is of the utmost importance.

Warning

Even though more often than not the warning is given early, the reaction capacity must also be very rapid because mortality is in direct proportion to the length of exposure to the risk.

Very few countries have sufficient reaction capacity, particularly in cross-border risks where complementing and coordinating means are priority objectives. This requires:

- a unified outlook
- attempts to standardise or complement means
- joint exercises carried out on a sufficiently regular basis.

Crisis management

Each country has developed a risk management policy which, even though it may cover the threats each country has to face, it is not necessarily harmonised on the European scale. There are great disparities regarding the use of new technologies.

Concerning the European Civil Protection Mechanism, three main aspects stand out from the many expectations highlighted in the questionnaire:

- financing research, special studies, software and specific equipment;
- cooperation between States:
 - To create a joint database suited to the various risks,
 - To set up an appropriate European emergency team,
 - To provide mutual assistance,
 - To exchange information , feedback, expertise,
 - Training, exercises,
- Technology transfer;
 - coordination:
- With the other European organisations,
- To draw up standardisation agreements, a directive in terms of operating procedures and decision support.

Identifying new risks that may develop in rural zones results in identifying failings in crisis management. (biological risks).

Standardisation of emergency equipment must not be seen as technical complementarity (compatibility of resources) but standardisation of action and results, the capacity to perform a particular action.

European standards for caring for and treating victims must comprise a genuine functional capacity for treatment, including when there are many victims. These standards must be defined.

There is a certain degree of concern regarding the technical, scientific and organisational capacity of new Member States. It is not easy to have them adopt the same European standards.

In the event of an emergency outside Europe, it is necessary to pool the deployment of resources by air or sea.

The European Civil Protection Mechanisms must be more efficient faced with risks the size of which is no longer on the scale of a single country.

Pooling resources is the only means of response capable of avoiding a major disaster. Their standardisation, a single doctrine of use, and a scientific community of experts define a common strategic approach.

Regional policies in Europe make it difficult to control emergency resources (e.g. Länders in Germany) both in the concept of functional units and their mobilisation.

The Commission's role should be to evaluate Europe's need in terms of emergency resources and hospital care. Germany, for example, has a particularly dense hospital network and considers that its needs are covered with the THW and emergency services, unlike in other countries. A European "SDACR" should be created by the MIC that should also match the capacities on offer with the functional capacities required.

Feedback

Because these operations are unusual, feedback is vital and should be based on collecting information on a European scale, similar to the capacity for expertise.

CONCLUSIONS

The working group considers the preparation and management of CBRN risks to be one of the European Community's major responsibilities in terms of Civil Protection.

The changes in industrial techniques, increasing exchanges of dangerous materials, increasing use of ionising materials, the need for energy other than fossil fuels and the risks of genetic mutation encouraging the emergence of risks including the potential for extension, go beyond the borders between countries.

In terms of prevention, the Community must establish regulations for making the use of these agents safe, regulations that should apply to all the Member States.

Pooling the resources of the monitoring and research laboratories, organising them in a network, the cooperation of experts and checking the mobilisation capacity of all the specialised emergency resources must be compatible with the need to respond rapidly. European exercises must regularly check this operational capacity and the use of feedback shared by everyone.

Research must be assisted in using new technologies, satellite images, modelling changes in risks, and biological research.

The public must be given training at an early age on suitable behaviour and understanding risks. In a crisis situation information given to the public must be coordinated.

Finally, the terrorist risk likely to use nuclear, radiological, biological and chemical agents is also the subject of close European cooperation that goes beyond the actual framework of Civil Protection.

GUIDELINES AND RECOMMENDATIONS REGARDING SEISMIC RISK

Foreword

Coping with seismic risk requires considerable discussions on land use.

Industrialization and excessive urban development raise the question of prevention faced with the risk of earthquake.

It is necessary to provide protection against a major disaster to ensure the collective safety of the public.

The unpredictability of these phenomena must not be allowed to lead to fatalism.

Action must be preventive to minimise the impact of earthquakes on infrastructures and individual safety of the public.

The emergency measures must be suited to modern techniques in order to meet the legitimate demands of the public.

Analysis of seismic risk

Seismic risk is a low-occurrence hazard with major consequences.

The aim is to identify all the threats and to apply the technical measures needed to improve collective safety.

It is therefore necessary to develop protective means:

- Individual: good reflexes, etc.
- Collective: land use, etc.
- Infrastructures: building code, etc.

Method

Based on the consequences and threats created by the seismic risk, it is necessary to identify the effects and define responses.

This vulnerability analysis enables preventive and also curative measures to be created:

- Special Emergency Plans,
- Common methods,
- Creating emergency detachments,
- Training experts.

Recommendations

Prevention

- Providing the public concerned with preventive information,
- Training the public: behaviour to adopt, first aid, etc.
- Performing full scale exercises,
- Developing international cooperation,

- An inventory on a European scale of the technical and human resources ready to be implemented,
- Reinforcing the scientific network,
- Anticipating disaster using simulators (modelling scenarios)
- Maintaining a high level of vigilance.

Planning

- Coping with the risk at the highest level of responsibility,
- Creating one-off legislative measures,
- Suiting planning to modern resources,
- Setting up satellite communication and surveillance means,
- Encouraging compliance with earthquake-proof standards and developing exchanges of knowledge,
- Reinforcing links between the decision-makers and experts in order to manage the risk: “single document”
- Training all the participants at every hierarchical level,
- Organising and participating in common exercises,
- Creating a network of experts at European level.

Warning

Seismic risk is still unpredictable. Everybody must therefore be very responsive. It is necessary to have resources and methods available in order to inform the authorities very rapidly and achieve coordinated, efficient action.

Decision support

Setting up:

- a risk evaluation system,
- risk mapping,
- evaluation and reconnaissance teams.

Crisis management

- Creating an inter-ministerial centre in each country,
- Studying and comparing the various forms of action:
 - Informing the public,
 - Listing damage,
 - Health projects,
 - Resource management,
 - Evacuating and caring for victims.
- Standardising and optimising the capacities of all the members.

Feedback: REX

- Creating a website of databases on earthquakes that are accessible and useable.
- Creating a single report document to:
 - collect the information uniformly,
 - inform each country,
 - facilitate operation and interpretation.

New technologies

- Create a forecast concept,
- Use GIS- type technology to define disaster situations,
- Use satellite imaging immediately,
- Access data in digital form.

Research

- Develop programmes simulating:
 - behaviour of infrastructure,
 - geographical location,
 - use of resources,
 - ...

Conclusions

In order for these recommendations to apply, joint, uniform actions are needed. Faced with seismic risk, the action must be:

- to reduce vulnerability,
- increase responsiveness.

To achieve this it will be necessary to:

- use new technologies,
- reinforce European cooperation,
- exchange scientific data,
- unify standards (building, etc.).

GUIDELINES AND RECOMMENDATIONS REGARDING URBAN RISK

INTRODUCTION

Including the notion of risk in the analysis of the urban environment enables us to approach the way in which social and political questions crystallize in terms of the collective security issue.

The concept of risk also refers directly to the two known notions of hazard and vulnerability and it may be considered that, within the context of managing urban risk, the concentration of production, economic and social development together with more or less controlled demography create genuine vulnerability.

In urban environments, the risk problem is also posed specifically, firstly by the concentration of people who are all subject to multiple risks at the same time in a limited space and, secondly, by the complexity and large number of utilities that increase the vulnerability of cities.

It should be noted that:

**THERE ARE CURRENTLY
100 CITIES IN THE WORLD WITH A POPULATION OF OVER
5 MILLION INHABITANTS**

**IN 20 YEARS
50% OF THE POPULATION WILL BE LIVING IN CITIES**

**BY 2050
75% OF THE POPULATION WILL BE LIVING IN CITIES**

therefore, **urban risk is gradually but rapidly becoming a major issue**

I) ANALYSIS OF THE RISKS IN THE URBAN ENVIRONMENT

The identification and analysis of risks in the urban environment must be understood by studying both the hazards and vulnerabilities. The aim is therefore to study the phenomena likely to cause damage (hazard) and the tendency of a given space or part to suffer damage (vulnerability) and the way in which these two aspects of the risk interrelate.

For example, we are not concerned with earthquake activity *per se*, but with the seismic hazard to which the urban zone in question is subject. Regional and historic seismic studies must be performed relative to this objective.

Similarly, it is not the flow of water in a city that is the important point but the fact that the increased concentration of water on restricted sites encourages risks: damage resulting from the lack of quantity or quality of water, damage caused by the effects of pumping in the water tables (subsidence) or waste (loss of utilities, flooding, pollution, etc.) according to the physical characteristics of the sites and characteristics of the population or water management techniques.

Similarly, it is not awareness of poverty that is necessary when studying social risk but its implications in terms of the public's vulnerability faced with the risks (for example, in terms of methods for occupying and using the ground, understanding risk or behaviour in emergency situations).

It is therefore necessary to study all the following risks that overlap and interrelate throughout the urban fabric of built-up areas, particularly:

A) NATURAL RISKS

- RISKS DUE TO FLOODING
- RISKS DUE TO LANDSLIDES
- SEISMIC RISK
- FOREST FIRE RISKS
- RISKS DUE TO VOLCANIC ERUPTIONS

B) TECHNOLOGICAL RISKS

- INDUSTRIAL RISKS (SEVESO II)
- HIGHWAY SYSTEM (roads and motorways)
- RAILWAY SYSTEM
- PORTS and AIRPORTS
- TRANSPORT OF DANGEROUS MATERIALS
- SENSITIVE INFRASTRUCTURES
- UNDERGROUND INFRASTRUCTURES
- FIRES IN PRIVATE HOMES, BUILDINGS OPEN TO THE PUBLIC and TALL BUILDINGS

C) HEALTH RISKS

- SEWERAGE SYSTEMS
- DRINKING WATER SYSTEMS
- EPIDEMIOLOGICAL ZONES
- WASTE TRANSPORT AND STORAGE
(household and industrial waste)
- PROBLEMS OF ATMOSPHERIC POLLUTION

D) SOCIOLOGICAL RISKS

- PATHOLOGY OF NEW URBAN SOCIETIES
- MASS URBAN DEVELOPMENT
(high concentration of populations)
- PHENOMENA OF URBAN VIOLENCE

E) TERRORISM

II) METHOD USED

From a methodological point of view, the risk is identified and understood by analysing the various aspects including:

- A spatial approach at the interface of physical and human environments
- The historic aspect (changes in natural conditions, hierarchy of responsibilities, consequences of political decisions, etc.) that has guided current management policies.
- Perception and awareness of the risk by the public affected and the decision makers with the consequences they manage. Similarly, it is necessary to allow for the cultural characteristics and diversity created in an urban environment that are often complex.

This analysis of hazard and vulnerability must be performed at a minimum of two levels:

- On the one hand, on the middle level of an urban area or watershed,
- On the other, at the small scale of neighbourhoods, or even smaller subdivisions depending on the public and the risks.

This method makes it possible subsequently to devise:

- a plan analysing and covering the risks
- plans for preventing and reducing the risks
- implementation of decision support systems based on:
 - 1) New technologies
 - a) Digital modelling of terrain and satellite analysis
 - b) Geographical Information Systems
 - c) Use of satellite analysis to define sensitive areas (flooding, landslides, etc.)
 - d) Satellite imaging (Flooding, Forest Fire, Risk Mapping, etc.)
 - e) Radar interferometry (landslides, minor subsident, etc.)
 - 2) Implementation of suitable regulations to enable:
 - a) Implementation of a land-use plan
 - b) Provision of preventive information for the public
 - c) Collaboration between State, the Regions and Local Authorities

III) RECOMMENDATIONS

Final recommendations on Urban risk were presented at the Second meeting of the Expert Committee in Aix en Provence and adopted at the last meeting of the Steering Committee on 9 May 2006. The presentation of these recommendations complies with the scheduling laid down in the Call for Proposals and includes:

- Preventive measures
- Planning
- Informing the public
- Handling alerts
- Decision support
- Crisis management
- Feedback
- Implementation of new technologies
- Research programmes

The following recommendations have been adopted:

A) PREVENTION

- DRAWING UP AND IMPLEMENTING A LAND-USE POLICY
- DRAWING UP A WARNING CODE DESIGNED TO ALERT THE PUBLIC
- DRAWING UP AND IMPLEMENTING A COLOUR CODE IN SENSITIVE SECTORS FOR ACTION BY THE EMERGENCY SERVICES
- ENSURING THE PURSUIT OF MAJOR PROJECTS IN THE CONTEXT OF THE MECHANISM FOR IMPROVED HANDLING OF URBAN RISKS AND THEIR EVOLUTION
- IMPLEMENTING A SUITABLE TRAINING POLICY FOR EMERGENCY SERVICE PERSONNEL
- UNDERTAKING LARGE-SCALE EXERCISES
- DRAWING UP AND ENFORCING LEGAL AND REGULATORY TEXTS
- CREATING A DATABASE FOR EACH MEMBER STATE OF THE EU LISTING EMERGENCY PERSONNEL AND SPECIALIST EQUIPMENT
- CREATING A PERMANENT EUROPEAN WORKING-GROUP TO STUDY URBAN RISKS (FORUMS AND FEEDBACK)

B) PLANNING

- CREATING AND IMPLEMENTING AN APPROPRIATE OPERATING METHODOLOGY FOR THE EMERGENCY SERVICES (FIRE BRIGADES, POLICE FORCES, ETC.)
- ADAPT CONSTRUCTIVE MEASURES TO REINFORCE SAFETY AND THE EFFECTIVENESS OF EMERGENCY RESOURCES
- CREATING A POLICY OF VOLUNTEER RESCUERS TO BACK UP THE ROLE OF THE PUBLIC AND INCREASE ITS CAPACITY FOR SELF-HELP
- IMPROVE INTEGRATION OF EMERGENCY PLANS IN DIFFERENT LEVELS OF DECISION-MAKING

C) INFORMING THE PUBLIC

- INCREASING PUBLIC AWARENESS OF URBAN RISKS
- PROMOTING SELF-PROTECTION MEASURES
- REINFORCING LOCAL REACTION CAPACITY
- CREATING AN EDUCATIONAL CAMPAIGN RUN BY TEACHERS IN SCHOOLS FROM THE YOUNGEST CLASSES UPWARDS
- CREATING AND ENCOURAGING NEIGHBOURHOOD COMMITTEES TO PROVIDE PUBLIC INFORMATION AT LOCAL LEVEL
- CREATING A VERITABLE URBAN RISK CULTURE
- PROVIDING INFORMATION ON THE RISK OF TERRORISM AND URBAN VIOLENCE

D) HANDLING ALERTS

- DRAWING UP AND IMPLEMENTING APPROPRIATE FAST-ACTING NETWORKS TO INFORM THE AUTHORITIES AND THE PUBLIC OF MAJOR RISKS
- ENSURING OPERATIONAL IMPLEMENTATION OF THE INTERCONNECTION NETWORK (CECIS) OF THE MEMBER STATES AND THE M.I.C.
- INTERCONNECTING ALERT NETWORKS, PARTICULARLY IN CROSS-BORDER ZONES
- ACHIEVING A COMMON APPROACH TO ALERT NETWORKS (MAJOR PROJECT THAT HAS ALREADY BEEN CREATED – NEEDS CONCRETE IMPLEMENTATION)
- REINFORCING COORDINATION BETWEEN ADMINISTRATIONS AND SERVICES

E) DECISION SUPPORT

ENSURING IMPLEMENTATION OF I.T. RESOURCES PARTICULARLY AS CONCERNS:

- RISK EVALUATION
- RISK MAPPING
- INTEROPERABILITY OF THE VARIOUS MEMBER STATES' SYSTEMS
- MAKING CONCRETE USE OF THE RESULTS OF EXISTING EUROPEAN PROGRAMMES IN THE MANAGEMENT OF URBAN RISK
- USING RADAR OR SATELLITE IMAGING

F) CRISIS MANAGEMENT

- FITTING OUT LOCAL CRISIS MANAGEMENT CENTRES TO ENABLE THEM TO RECEIVE SATELLITE IMAGES AND IMPROVE DECISION-MAKING
- ENSURE BETTER CARE OF THE DISPLACED AND/OR INJURED PUBLIC
- REINFORCING EXERCISE POLICY AT EUROPEAN LEVEL AND INTEGRATING URBAN RISK INTO THEIR SCENARIO (E.G. EURATECH 2005)
- REINFORCING A COMMON APPROACH AND VISION IN THE 25 MEMBER STATES AND THE 3 COUNTRIES OF THE EEA, PARTICULARLY INCLUDING: IMPLEMENTATION OF NEW TECHNOLOGIES (GEOGRAPHICAL INFORMATION SYSTEM, USE OF SATELLITES INCLUDING FOR COMMUNICATIONS)

G) FEEDBACK

- CREATING A NETWORK OF NATIONAL AND EUROPEAN EXPERTS
- CREATING A EUROPEAN WEBSITE SHOWING MAJOR URBAN DISASTERS INCLUDING LESSONS LEARNED AND TEACHING (TRAINING, ETC.) IMPLEMENTED
- DEVELOPING A EUROPEAN POLICY ON SIGNALS USED TO ALERT THE PUBLIC (MAJOR PROJECT PARTICULARLY DEVELOPED BY SWEDEN)

E) IMPLEMENTATION OF NEW TECHNOLOGIES

- VERY RAPID AVAILABILITY (FIRST MINUTES TO ONE HOUR) OF SATELLITE IMAGES TO GIVE IMMEDIATE PICTURE OF THE SITUATION
- AS PART OF ALERT STRATEGY, BACKING UP THE AUTHORITIES WITH TELECOMMUNICATIONS VIA SECURED SATELLITE SYSTEMS
- COORDINATING GEOGRAPHIC INFORMATION SYSTEMS WITH SATELLITE IMAGES AND COMPUTERISED DECISION SUPPORT SYSTEMS (EURORISK-RIS-EOS II-BOSS 4 PROGRAMMES, ETC.)
- REINFORCING THE USE OF RDS (RADIO DIGITAL SYSTEM) AND SMS SYSTEMS TO ALERT THE PUBLIC.
- INSURING RELIABLE, ONGOING FEEDBACK.

F) RESEARCH PROGRAMMES

- REINFORCING EUROPEAN CAPACITIES IN THE FIELD OF CIVIL PROTECTION THROUGH THE USE OF NEW TECHNOLOGIES INCLUDING:
 - Experience of using the Space charter since 2000 (Asian Tsunami, Bulgaria, Louisiana, Pakistan, etc.)
 - Use of new European satellites (Cosmo/Skymed, Pleiades, etc.) in liaison with European and national space agencies
- CREATING A PRIORITISED EMERGENCY SITUATION MANAGEMENT SERVICE AS PART OF THE GMES PROGRAMMES WHILE ENSURING THE CREATION OF GUIDANCE AND IMPACT MAPS UNDER THE FOLLOWING CONDITIONS:
 - a) *GUIDANCE MAPS*
 - Index of place names, human, property and infrastructure risks
 - Updating holdings (particularly outside the EU)
 - Available in less than 6 hours
 - Scale 1:100,000 (overall view) – 1:25,000 (tactical)
 - b) *IMPACT MAPS*
 - Flooded and destroyed areas, land-slides, etc.
 - In Europe and in the Mediterranean basin, available within 24 hours, updated daily before 17:00 UTC
 - In the rest of the world, available within 36 hours, updated depending on nature of event
 - Scale 1:50000 (overall view) – 1:10000 (tactical)

IV) CONCLUSIONS

The implementation of these recommendations applies by mainly stressing the two levels of analysis constituted by the town and local level, in particular the prioritised areas and factors (risks) within towns. The first level of analysis does not constitute an end in itself but operates at the second level in order to yield operational conclusions. In order to be effective, work of this type should concentrate on given facilities in that losing them would constitute a major handicap for the Community and the development of the town. In this approach it is also necessary to include a historical study of the urban environment that includes the reactions of the public as well as political decisions taken by the public authorities.

FINAL RECOMMENDATIONS

ON

SEISMIC, URBAN AND CBRN RISKS

Foreword

The objective of the major project on a comparative study of the methods used to evaluate and manage risks in three areas, namely seismic, urban risk and CBRN risk, aims to increase the degree of understanding of what each risk represents by those responsible for Civil Protection in each Member State.

The project was a unique occasion to share feedback and compare methods for dealing with disasters in order to reduce the consequences of such disasters or events.

All these documents are included in the reports of the meetings of the two Expert Committees held in November 2004 and November 2005.

In addition, an inventory of existing methods was sought in order to draw up this framework document as well as recommendations for Civil Protection in Member States incorporating operational practice as well as the latest scientific research in these different fields, taking care to include the two phases consisting of evaluation and management of these risks.

The Community's ability to handle major risks is a challenge of considerable importance for European Civil Protection.

Moreover, the recent major disasters and terrorist attacks in the European Union have shown the need for greater co-operation between Member States in the rapid integration of feedback from each operation.

Exchanges of human, technical and technological resources have enabled the entire EU to take advantage of modern, high-performance risk-management systems.

The most recent major disasters have revealed:

- considerable solidarity between the members
- a keen desire to pool resources to improve effectiveness
- considerable vulnerability.

In line with the imperative character of risk management, recommendations have been made to improve Europe's reaction and operational capacity.

The aim of controlling the effects of disasters is to reduce impact in the face of human, social, economic, political and other factors.

Preventive measures

The aim of preventive measures is to reduce the impact of a disaster on all human and socio-economic factors.

- To achieve this it would seem important to prepare appropriate legal and regulatory texts and to implement a genuine land-use policy. On this subject the forthcoming European Directive on flooding can be seen as a first step towards giving the Member States of Europe common references.
- The public needs to be trained and informed. We need to both devise a training policy for emergency staff, but also involve the public by implementing a warning code and, for example, a colour code designed to assist the work of the emergency services in sensitive areas. The public concerned should be very vigilant in order to achieve the maximum response capacity. By regularly organising large-scale exercises, the behaviour of everyone involved is improved through the acquisition of behaviours that have been rehearsed many times. Such exercises are also an opportunity to reinforce the role of locally based volunteer rescuers capable of helping neighbours when major disasters occur.
- European co-operation must be developed. The major project should be followed up with a mechanism for taking better account of the risks and their evolution. An inventory of community, human and equipment resources should be drawn up to facilitate organising emergency efforts.
The European organisation is a forum where skills and expertise can be exchanged. We should be creating a working group within this organisation made up of experts and scientists to study the various risks, the ways they evolve, feedback, etc.

Planning

Faced with the extent and consequences of seismic, urban or CBRN risks, anticipation and forward planning must be stressed.

- Emergency plans should be better integrated into the various levels of decision-making.
- The creation of a volunteer rescuer policy would reinforce the public's role and capacity for self-help.
- The implementation of common town-planning rules (for example, earthquake-protection standards) would increase safety and the effectiveness of emergency resources.
- Training of emergency teams should be developed at every level. The emergency services should adopt suitable operating methods.

- To improve links between institutional decision-makers and the experts, the drafting of a framework document that respects the sovereignty of each State is becoming necessary.

Informing the public

More for CBRN risks than for urban risk, the notion of borders is an abstract one.

Public communication and information should be ensured by the highest authorities.

Informing the public should be co-ordinated at European level.

Acquiring good reflexes should start as young as possible. The public should be made aware by training schoolchildren and creating neighbourhood committees.

Promoting self-protection measures also means making the public aware of the risks. A culture of risk needs to be created and information on risks must be maintained.

Alerts

Seismic, urban and CBRN risks are still very difficult to forecast. This means that all players need to be able to react very rapidly. We therefore need to acquire the aids and methods to inform the authorities quickly and take co-ordinated, effective action.

Although alerts are most often given too early, the ability to act should also be very rapid: levels of mortality are directly proportional to the time people are exposed to the risk.

Few countries have adequate reaction capacity, and particularly where cross-border risks are concerned, the complementarity and co-ordination of resources are key objectives. What is essential is:

- **A common view:**

- Reinforcing co-ordination between administrations and emergency services,
- Interconnecting alert systems, particularly in border areas,

- **An effort to standardise resources or make them complement each other:**

- achieving a common approach to alert networks (major project that has already been launched – needs concrete implementation),
- ensuring operational implementation of the interconnection network (CECIS) of the Member States and the M.I.C.

- **Sufficiently frequent joint exercises on each theme:**

- Acquire self-knowledge to built and implement fast-acting systems for informing the authorities and the public about major risks.

Decision support

Modern communication resources require that the authorities have fast, reliable decision support aids.

They require the setting up of:

- risk-assessment aids,
- risk mapping,
- radar and satellite imaging,
- national systems that can operate with those of other Member States.

In risk management it is necessary to make concrete use of the results of existing European programmes (see appendix 1).

Crisis management

Managing major risks needs joint action by several distinct players.

In order to deploy every resource to achieve a return to normal, it is necessary to:

- Create an inter-ministerial co-ordination centre that is the focal point in each country,
- Optimise the capacities of Member States as part of a European pooling of resources and genuine solidarity,
- Harmonise risk management policies.

In addition, there is a need to develop a programme of upgrading which requires action by the European authorities:

- Financing research, software and specific equipment,
- Inter-State co-operation to develop mutual aid, exchange data, feedback, expertise, etc.
- Technology transfer: accessible to and usable by all,
- Standardising emergency resources: standardising responses and results, ability to carry out a given operation,
- Defining European standards for the care and handling of victims,
- Pooling of resources,
- Equipping of local crisis centres with relevant modern resources such as satellite images, for example
- Care of injured or displaced public,
- Reinforcing exercise policy at European level and including urban risk.

Feedback

“Low-occurrence hazard with major consequences”, the European countries should use other countries’ experience to reduce future impact.

Information should be free and accessible and make it possible to develop:

- The creation of a European website presenting major events and the lessons learned from them, etc.
- The creation of a network of national and European experts,

- The creation of a single reporting document,

Lastly, Europe should acquire a network of public warning signals (major project developed by Sweden).

Implementation of new technologies

Major risks usually affect areas which, on the European scale, can be considered medium- to large-sized. It is therefore usually possible to observe the effects by satellite imaging.

Each operational centre must:

- Receive this data very quickly,
- Protect telecommunications networks for alerting authorities and emergency services,
- Reinforcing the RDS and SMS systems,
- Co-ordinating geographic information systems with satellite images and computerised decision support systems (Eurorisk, Risk - Eos II programmes, etc.),
- Have rapid, efficient simulators available,

Research programmes

Research programmes should reinforce European capacity through the use of new technologies and the development of:

- Programmes simulating:
 - The behaviour of infrastructure,
 - Geographical location,
 - Use of resources,
 - Rescue missions,
 - etc.
- Correct use of the Space Charter (Asian Tsunami, Louisiana, Pakistan, Bulgaria, etc.)
- Use of new European satellites (Cosmo/Skymed, etc.) in liaison with national and European space agencies.

It is also necessary to create a prioritised support service to manage emergency situations as part of GMES programmes whilst creating guidance and impact maps under the following conditions:

- Guidance maps:
 - Index of place names, human, property and infrastructure risks
 - Updating holdings (particularly outside the EU)
 - Available in less than 6 hours
 - Scale 1:100,000 (overall view) – 1:25,000 (tactical)

- Impact maps
 - Flooded and destroyed areas, land-slides, etc.
 - In Europe and in the Mediterranean basin, available within 24 hours, updated daily before 17:00 UTC
 - In the rest of the world, available within 36 hours, updated depending on nature of event
 - Scale 1:50000 (overall view) – 1:10000 (tactical)

Major Project comparing methods of evaluating and managing seismic, urban, and CBRN risks

Conclusions

For two years the implementation of this major project has brought experts from the 25 Member States and the European Commission together in a programme that concerns all European citizens. It came up with recommendations that, whilst undoubtedly applying to the three main risks under consideration, in many cases could also be applied to the management of other risks.

The European Commission (Civil Protection Unit) now needs to facilitate the recommendations issued by the Expert and Steering committees with, in particular, the creation of a group to monitor experiments and discussions suggested by all the States. Incidentally the review of the European Civil Protection Mechanism and the study commissioned by Michel Barnier are major opportunities that should ensure that the proposals contained in the present document are implemented rapidly and thoroughly.

APPENDIX 1

Major Project comparing methods of evaluating and managing seismic, urban, and CBRN risks

Results of SURVEY

Of the 22 countries present at the conference on managing seismic, urban and CBRN risks, 21 nations answered the attached questionnaire:

Belgium
Bulgaria
Cyprus
Czech Republic
Denmark
Estonia
France
Germany
Greece
Hungary
Italy
Lithuania
Luxembourg
Netherlands
Norway
Poland
Portugal
Slovakia
Spain
Sweden
United Kingdom

The questionnaire was divided into four sections and was designed to take stock and compare the risk management situation in each Member State in general, and then in each specific area: seismic, urban and CBRN risks. The Excel format matrix is intended to be a comparative summary of the various positive, negative or neutral responses (for the sake of clarity they are highlighted in green, red and white respectively); observations inserted in the cross-tabulation table are attached to it. The results are presented in the attached slide-show.

Generally speaking it would appear that the countries have action plans in each field according to the likelihood of their facing a major risk. Thus since they all have to cope with urban, industrial and technological development, they have drawn up action plans in the urban and CBRN risks fields. Only those nations that are geographically exposed to the risk of earthquake have defined action plans in proportion to the threat.

Although it is true that most countries use geographical information systems (GIS) during crisis management, the use of satellite imaging remains covered by a cloak of secrecy. In fact, more than two-thirds of States do not use it in any field and have no contact with their national space agencies. The “Space and Major Disasters” charter published by the European Space Agency is known to 50% of countries but used by less than 20%.

In management terms, virtually all the States have developed capacity in the fields of alerts, planning, operational management, decision support and feedback via the various Civil Protection directorates. The exceptions are Sweden, where the first three fields are the responsibility of the local authorities to whom it provides support, and the United Kingdom where management and planning are also the responsibility of municipal authorities.

In the field of managing earthquake risk, of the countries that are geographically vulnerable only Germany and Hungary have no specific action plans. But rescue operations are coordinated for the entire population at national if not local level. Each of these States has a specific public information policy.

On the subject of human and equipment resources, five countries have rapid methods for evaluating levels of damage: Bulgaria, Cyprus, France, Greece and Italy (SIGE). With the exception of Lithuania, they all have trained, experienced specialist emergency detachments that can be deployed inside and outside Europe within periods ranging from 2 to 48 hours (50% < 12hours) depending on the availability of forecast vectors.

Regarding the management of urban risk¹ which covers natural, industrial and technological, epidemiological and health, and sociological risks, in most countries the role of the public authorities is laid down by law, through the implementation of land-use plans (16) as part of preventive public information policies.

Each State has drawn up plans analysing and covering the risks, at least on national scale (Luxembourg), national and regional (Bulgaria), or urban and local (Cyprus, Sweden). In terms of the prevention plans, a major imbalance is the neglect of sociological risk. Only 8 States out of 20 take this threat into consideration.

On the subject of decision support tools, in line with what was said above, although most nations have access to GIS and the mapping of danger and industrial zones, only a minority use satellite imaging (5), and less than half use urban mapping. Except for satellite sensing analysis and the geographical systems used by 12 nations, less than one third of nations use the new space and radar technologies.

¹ 20 out of 21 nations responded

In terms of CBRN risks, due to the fact that they have industries, consume energy and transport dangerous materials, etc. every country has specific action plans the level of confidentiality of which ranges from “unclassified” to “secret” or even “top secret”. Only nine States have specific legislation. Apart from Portugal which has no specialist staff or equipment, training policies are implemented at local, regional and national level. Whilst detection and decontamination staff and resources appear to meet requirements, mass decontamination units in six countries have not been equipped. The training of specialist staff is ensured by the General Directorate for Civil Protection in 13 out of 21 countries. Finally, as concerns institutional players, the rules vary from country to country; their identity depending on the type of danger and the economic, geographical, political or other sector affected by the threat, the organisations or non-governmental agencies, ministerial institutions responsible for the sector and interrelated responsibilities.

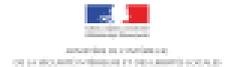
In conclusion, each country has developed a policy of risk management which, whilst it covers the threats each must face, is not necessarily harmonised Europe-wide. There are considerable disparities at work as concerns the use of the new technologies.

As concerns the European Civil Protection Mechanism, three points stand out from the many expectations stressed in the questionnaire:

- Financing of research, special studies, software and specific equipment;
- Inter-State co-operation in:
 - drawing up a joint database suited to the various risks,
 - launching a European emergency task force,
 - mutual assistance,
 - exchanging information, feedback and expertise,
 - training and exercises,
 - technology transfer;
- Co-ordination:
 - with other European bodies,
 - in the drafting of a standardisation agreement and a directive on operational procedures and decision support.

APPENDIX 2

SUMMARY TABLE OF THE VARIOUS EUROPEAN RISK RESEARCH PROGRAMMES



European research 1994-2004

FLOODS FIRES GEOHAZARDS SEA/COASTS

