Deliverable D5.5:
Policy Recommendations

Author(s):	Maurice Said (TRI), Frank Wilson, Rob Peters (IFV), Piet Selke (DIA)
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Chapter	Main authors responsible	Contributors
Chapter 1	Maurice Said (TRI)	
Chapter 2	Maurice Said (TRI), Piet Selke (DIA)	Frank Wilson (IFV)
Chapter 3	Maurice Said (TRI), Piet Selke (DIA)	
Chapter 4	Maurice Said (TRI)	Rob Peters (IFV), Robert Pelzer (TUB)
Chapter 5	Maurice Said (TRI)	Rob Peters (IFV)
Chapter 6	Maurice Said (TRI)	

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EXECUTIVE SUMMARY

Based on the outcomes of 'Balancing Vulnerability and Resilience' (WP2), 'Reconstruction of Crises and Crisis Decision Processes' (WP3), 'System Analyses' (WP4) and 'Behavioural Analyses: Activities, Communication and Decision Points' (WP5), this deliverable identifies specific policy recommendations related to cross-border communication, as well as additional specific policy recommendations focusing on first responder and crisis managers' requirements. This deliverable builds directly on the observations and results presented in D5.4 'Managing cascading effects', that targets key communication challenges in the management of cascading effects in crises. Drawing on the observed communication challenges before, during and after a crisis that were presented in D5.4, this deliverable outlines key policy recommendations for cross-border communication and crisis management at an EU level. This deliverable builds on the table of typologies of communication challenges presented in D5.4 by specifically outlining how the proposed policy recommendations target each of the communication gaps. Given that the communication gaps outlined are dependent on the specific context in which the crisis scenario takes place, it is unlikely that the FORTRESS tools will be able to meet these requirements. Rather, the outlined gaps will translate into guidelines that alert users to cross-border and inter-organisational communication challenges. The policy recommendations reflect the communication advice for different target audiences, incorporate the insights from the foresight-scenarios and integrate the various functions identified in WPs 2-5. Furthermore, the information and communication demands between actors as well as in regard to media and the public have been observed, analysed and documented as part of the policy recommendations presented here. As part of the overall aim of FORTRESS to place first responders and crisis managers' requirements at the forefront, the recommendations in this deliverable are a result of conversations and debates with these stakeholders. Although, D5.4 and D5.5 are separate deliverables they are mutually dependent and meet the same objective, i.e., to holistically improve on communication, particularly cross-border communication, in crisis scenarios and to bring to attention gaps in EU policy on cross-border communication.

INTRODUCTION

This deliverable utilises the lessons learned on 'Balancing Vulnerability and Resilience' (WP2), 'Reconstruction of Crises and Crises Decision Processes' (WP3) and System Analyses (WP4) to formulate policy recommendations of interest to first responders, crisis managers and critical infrastructure providers. In addition, this deliverable draws on the typology of communication challenges developed in 'Managing Cascading Effects' (D5.4) to fine tune the policy recommendations and adapt them to specific challenges identified across each information category before, during and after a crisis. A brief overview of the EU's policies and approach to cross-border crisis management is also provided in order to elucidate what provisions are already in place and what communication gaps exist.

This deliverable builds on the arguments in WP2 that identify lack of communication or a poor communication structure between the public, the media and first responders as an indicator of vulnerability. These observations are then applied to the results of the analyses of past crisis case studies in WP3, where it was identified that poor communication triggered cascading effects in a number of past crisis scenarios. Communication in this context implies not only the ability to transmit information of benefit to the recipient, but also an effectiveness in understanding the message transmitted, and having access to clear information detailing roles, functions and responsibilities.

The typology of communication challenges in D5.4 reflect questions and information requirements posed by a wide array of stakeholders from the general public to the media and first responders and crisis managers. These questions and information requirements are translated into general requirements that, together with the results in WP2 and WP3, are translated into feasible and realistic policy recommendations that would aid the EU Commission, first responders and crisis managers in improving communication between the relevant stakeholders before, during and after cross-border crises.

EU APPROACHES TO CROSS-BORDER CRISIS MANAGEMENT

The European Commission notes that 37.5% of the EU population live in border areas along 38 internal borders across the European Union.[1] In this regard, the EU Civil Protection Mechanism (EU CPM) was set up to collaboratively cope with and handle disasters and risk scenarios along European borders. However, although this decentralised system advocates for increased cooperation between countries sharing a border, the primary responsibility for disaster management remains with Member States. The system is focused on disaster prevention and preparedness and is centred on the sharing of information, simulation exercises and developing new technologies and responses to better cope with and manage cross-border incidents. However, the EU CPM is dependent on the response provided by participating states in the mechanism which raises questions about the viability of the mechanism where participating states may be lacking in funding, have limited means of transportation (to the sites of the disasters) and, may be further hampered by a lack of security guarantees and language barriers.[2]

The EU CPM is governed by an extensive mechanism of legislation and regulations for responding to cross-border crises. Of the several resolutions that compose the legislation guiding the EU CPM, one of the most important is the resolution passed in 1991 and dealing with mutual aid between Member States in the event of a natural or technological disaster. It involved the ability for the affected state to request assistance in the event of a disaster, where the damage caused exceeded the affected state's available means and resources. In the past two decades since the resolution was passed, the EU has sought to improve its rapid response efforts to disasters. In this respect the EU CPM has organised training sessions between various Member States, simulation exercises and the sharing of good practices. The process for responding to a crisis at the EU level is subject to the following procedure:

- An official request for assistance is issued by the affected country
- Monitoring and Information Centre (MIC) issues a request to the national contact point
- National contact points assess resources available and needed
- The MIC either sends an EU team on the ground *or* compiles an offer of assistance that can be either accepted or rejected by the affected country (it was activated most recently for the 2015 Nepal earthquake)

This process provides a centralised organisational structure for managing information during a crisis at the macro level, but is limited in its efficiency at the micro and regional level because it is not focused on long term engagement in cross-border regions, an initiative that would require a more extended and engaged relationship between crisis response practitioners along borders.

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[1] EC Europa, Interreg A Cross-border cooperation, 2015 [online] http://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/cross-border/#8 (Accessed 29 August 2016).

[2] EC Europa, Strengthening the EU capacity to respond to disasters: Identification of the gaps in the capacity of the Community Civil Protection Mechanism to provide assistance in major disasters and options to fill the gaps – A scenario-based approach, 2009 [online] http://ec.europa.eu/echo/files/civil_protection/civil/prote/pdfdocs/Final%20Report%20-%20scenario%20study.pdf (Accessed 26 August 2016).

The policy recommendations outlined in this deliverable draw on the lessons learned in the FORTRESS project to target communication gaps from the pre-crisis stage to the post-crisis stage at a regional level and address in doing so, some of the limitations of the EU CPM.

1.1 COMMUNICATION DURING CRISES

As identified in WP2, the construction of appropriate crisis scenarios regarding commonly occurring crises are a key aspect of the training required for the successful cross-border management of crises. Imperative to this is a long term and sustained effort at building and maintaining a relationship of trust between the public and the responsible authorities during a crisis. Effective communication requires ongoing and extensive cooperation between multiple agencies. This is possible only if the structures have been put in place to facilitate dialogue and cooperation. The basis of these structures for communication can be split into four main categories:

1. Ensuring that responders, crisis managers and the relevant authorities are able to understand the content and context of the information they receive
2. Ensuring that a relationship of trust has been established between the person/authorities relaying information and those receiving it
3. To collaboratively coordinate decisions that are mutually beneficial and that have been pre-determined during appropriate and pre-tested crisis scenarios
4. To provide the grounds for effective communication and participation of interested and affected stakeholders in decisions that could have an effect on them and allow them to participate in the decision-making process.

These four categories were drawn from the work conducted in WP2 and WP3 to represent the communication gaps that have led to miscommunication and a lack of coordination in past crises. Analysis of past crises revealed examples of communication gaps that, if addressed, could help minimise the chances of cascading effects in crises. Whilst the FORTRESS tools facilitate the visual interlinking of infrastructures, sectors and systems in a contextual scenario, the policy recommendations in this deliverable are directed at creating a similar interlinking between actors involved in the response to and management of crises. The FORTRESS tools in this respect, provide an integrated and interactive platform that encourages communication and dialogue between the actors involved in a crisis scenario. As outlined in WP3 the strength of the FORTRESS tools is in revealing details which may be concealed, or in 'making the invisible visible'.

With regards to stakeholder information requirements, the table in Chapter 3 outlines the typology of communication challenges (D5.4), drawn from discussions with various stakeholders (risk managers, journalists, the public) through workshops with risk managers, journalists and the public. The table has been extended to indicate recommendations for each category that are elaborated upon in Chapter 4.

1.2 ENHANCEMENT OF CURRENT EUROPEAN POLICY AREAS

Based on the considerations presented in this deliverable, and the advice of FORTRESS partners, there are primary European Policy areas that should consider enhancements based on the practical experience of this and other FP7 project that have collaborated via the DOMINO and Community of User (CoU) groups.

1.2.1 *EU Civil Protection Mechanism*

The EU Civil Protection Mechanism is supported by all Member States, as well as our immediate neighbours (Iceland, Montenegro, Norway, Serbia, the former Yugoslav Republic of Macedonia and Turkey). Agreements on in-kind assistance such as deployment of teams, and provision of experts, is designed to ensure well-coordinated responses at European level whenever necessary to ensure that assistance meets needs in affected regions.

While coordination is assured via the Emergency Response Coordination Centre (ERCC) as operational hub, practical assistance comes from responders and safety partnerships in Member States, and so the inter-linking of such responders and partners with the hub, and with each other, depends on established mechanisms and protocols for information exchange and for joint/collaborative response.

Development of shared understanding between key actors in this regard is necessary to expand the focus, which is now primarily at global level (e.g. marine pollution, volcanic action, hurricanes, etc.) but is increasingly of interest at EU level (e.g. increased threats from flooding, extreme weather, attack on critical infrastructure, etc.).

The Member States should therefore refine the implementation of the EU Civil Protection Mechanism by encouraging and supporting:

1. Sharing good practice in cross-border collaboration in crisis planning and response.
2. Sharing results concerning strategies and use of standards (see 2.2.2) for sharing of risk-related information, as well as sharing disaster information, to help improve capacity for collaborative planning and response.
3. Usage of the typology of communications challenges and recommendations in Chapter 3 of this report as a basis for discussion on practical collaboration and information exchange in EU cross-border civil protection planning and response.
4. Arrangement of semantic interoperability as detailed in Chapters 3 and 4 of this report, and as addressed under standardisation in 2.2.2, as a critical mechanism for improved capacity.
5. Identification of naturally occurring regional partnerships facing cross-border crisis threats, as well as enhancing their establishment as acknowledged "preparation and response partnerships" addressing specific EU threats.

1.2.2 *Standards for Public Safety*

The Programming Mandate addressed to CEN, CENELEC and ETSI to establish security standards (M/487 EN) resulted in recommendations advised by FORTRESS partner IFV in 2013 (in "Mandate M/487 to Establish Security Standards, Draft Report Phase 2, Proposed standardisation work programmes and road maps" published by NEN - http://www.nen.nl, 2013), and allocated to CEN/TC 391/WG 3 'Societal and Citizen Security: Crisis Management and Civil Protection'.

This broad set of standards, particularly those aspects concerned with interoperability, semantics, and information exchange, directly address key areas of concern for collaboration between responders and safety partnerships, especially in cross-border situations.

The current status of these proposed standards is on-going, with some publication targets completed in 2015/2016, while other significant targets remain for 2017 and beyond.

The work conducted in FORTRESS, and considered previously, further emphasises needs to:

1. Raise awareness amongst EU Collaborative Projects in public safety, and amongst responder networks, of relevant technical standards supporting cross-border interoperability.
2. Ensure emerging standards on human-computer interaction fully support operator needs in cross-border crisis response.
3. Ensure the Community of Users on Safe, Secure and Resilient Societies (CoU) is kept aware of standards for civil protection as supported by EN/TC 391/WG 3.
4. Recognise the need to consider border security standards and mechanisms as critical determinants of cross-border collaboration, and so support dialogue on this aspect.
5. Promote and support collaborative groupings such as DOMINO and CoU to ensure practitioner exchange, and forums for practitioner learning and sharing of experience, so as to inform the evolving standardisation process through relevant linkages.
6. When implementing relevant standards, jointly consider the economic and civilian (health and psychological) impacts of cascading effects of natural hazards or failure of critical infrastructure so as to avoid a technology-centric perspective (maintaining human focus).
7. Align technical standards on interoperability to the strategic objectives of the European Civil Protection Mechanism to ensure that the intentions concerning public safety, implemented as collaborative processes between Member States, are fully supported by the necessary capacities for information exchange and semantic interoperability. That process can only be realised by clearly establishing functional and informational needs as defined by FORTRESS and related projects.

TYPOLOGY OF COMMUNICATION CHALLENGES AND RECOMMENDATIONS

The following table (1) represents the typology of communication challenges before, during and after a crisis. *Who* needs to know *what* and *when* is the primary concern outlined by these challenges. The questions outlined in the typology represent real concerns by stakeholders, end-users, first responders, crisis managers, critical infrastructure providers, the media and the public. Data to inform the table was collected at simulation exercises with risk managers as well as workshops with journalists and the public as part of the FORTRESS project and represent pertinent and persistent concerns on the availability of information before, during and after crises. The challenges outlined also complement and run parallel to the observations and conclusions drawn out in WP2, WP3 and WP4. Thus, the policy recommendations being proposed emerge from real concerns and represent commonly acknowledged communication challenges. Highlighted in the final column are requirements that apply to each set of communication challenges. These requirements are translated into detailed policy recommendations in the next chapter.

	Pre-crisis	During crisis	Post-crisis	Requirements
General crisis information	- When is the decision to be evacuated to be expected in the scenario? - How many citizens would be affected? - How many immobile / vulnerable citizens? - How many animals? - Cultural heritage to be protected? - Which water / aerial vehicles are available for operations?	- Affected area - Time frame of crisis development - When is the decision to be evacuated to be expected in the situation? - How many citizens are affected? - Are there special events taking place? - Which water / aerial vehicles are available for operations? - What do we know about the cause of the situation?	- How many casualties? - How many citizens suffered damage? - Will it be possible to revitalize the areas? - What provisions do we need to establish in the meantime?	- Clear outline of jurisdictional relations and who is responsible for what prior to, during and after a crisis

Table 1: Typology of general communication challenges and requirements in crisis

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FORTRESS Foresight Tools for Responding to cascading effects in a crisis

Specific requirements	Pre-crisis	During crisis	Post-crisis	Requirements
Information on critical infrastructures and critical sectors	- What critical infrastructures / sectors are in which area? - What effect is to be expected regarding the base-infrastructure of the water boards? - What effect is to be expected National water infrastructure? - What is the impact of the scenario on the wastewater treatment? - What effect is to be expected regarding the infrastructure of gas/heating/electricity? - What effect is to be expected regarding the infrastructure of drinking water? - What effect is to be expected regarding the Telecom infrastructure? - What effect is to be expected regarding the financial infrastructure? - What effect is to be expected regarding the rail road infrastructure? - What effect is to be expected upon Air Transport? - What effect is to be expected regarding nuclear plants and cooling systems?	- What critical infrastructures / sectors are in the affected area? - What roads are usable and what roads are not? - What extra danger is to be expected regarding any form of transportation?	- What are the damages on critical infrastructures? - What are lessons learned in the management of critical infrastructures?	- Sharing of lessons learnt and experience gained in joint expertise sharing and training between first responders, crisis managers and critical infrastructure providers. It is worth noting that in this respect, the FORTRESS scenario builder (FSB) is aimed at encouraging and providing a platform for inter-organisational communication about the risks during or leading up to a crisis and thus, being able to prepare for such an eventuality.
Information on critical zones	- Can the area be divided into safety zones of different character: what is going to be submerged and what is not? - In what area is a cascading effect to be expected? - What is the use of the area (industry/living/recreation, etc.)?	- Can the area be divided into safety zones of different character: what is going to be submerged and what is not? - In what area is a cascading effect to be expected? - Use of the area (industry/ living/recreation, etc.)?	- How long will it take to restore the area?	-
Information on crisis management	- Responsibility for providing information - Agreements or procedures required given the scenario? - In what way are orders to the public given?	- Responsibility for providing information - Agreements or procedures required given the *situation*?	- Responsibility for providing information - Agreements or procedures required	- Joint scenario planning between first responders, crisis managers, critical infrastructures providers

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Specific requirements	Pre-crisis	During crisis	Post-crisis	Requirements
	- How much time will citizens and critical infrastructure providers have to react /evacuate? - Are there secure/safe areas in the neighborhood? - What evacuation routes are organised? - Where will the shelters be installed (in our out of which zone)? - Is there a traffic management plan available?	- Where will the shelters be installed (in our out of which zone)?	looking back at the scenario?	and transport agencies. There should be a clear division of responsibilities and a clear outline of roles and hierarchies within and across borders.
Information on public's information needs	- How are information to the public given? - How will social media be analyzed? - How much time will we have to warn/inform the public in an area? - What will be the evacuation strategy? - What does the public know about the envisioned risk? - Did similar events happen before? - Is the event a man-made or natural disaster?	- Indications of state of mind of the public through social media? - Which health related information is available? - Which security related information is available?	- How to organize preparedness for future events? - How to evaluate the incidents to prepare the preparation? - How to change communication tools, if necessary?	- A common standard for communication systems
Information on media's information needs	- Information on preparedness measures - Information on emergency planning - Information on specific information sources / organisations in case of emergency	- Information on current threats - Information on uncertainties - Information on future measures	- Information on evaluation measures - Information on mitigation measures - Lessons learned	- A common directive to decide on information that is provided to the media and the public, ensuring that information released does not compromise response procedures or national security.
Information on stakeholders' information needs	- Assessing stakeholders' vulnerabilities - Assessing stakeholders' resilience	- Information on current threats - Information on uncertainties - Information on future measures	- Information on evaluation measures - Information on mitigation measures - Lessons learned	-

Table 2: Specific crisis information requirements

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SPECIFIC POLICY RECOMMENDATIONS

The following policy recommendations build on the communication gaps identified in WP2 and WP3 and are drawn out of the needs of various stakeholders outlined in the typology of communication challenges.

Issue

Cross-border communication: first responders and crisis managers across Europe use different terms and indicators of risk. Such a situation increases the likelihood of miscommunication and the prolonging of appropriate response procedures during crises. Although a common standard (European Tetra standard) does exist, it is not actively enforced and still results in communication issues.

Recommendation

Semantic interoperability: create a European library/repository of terms that feed icons on maps

Rationale

Given that the stated aim of the European Civil Protection Legislation (EU CPL) is to tackle common challenges in the border regions of Europe, the European repository that feed into icons on maps would go some way in achieving this aim. For example, although the European Tetra-standard is meant to assure that national systems are compatible, communication problems still arise.

Issue

Cross-border communication: The European continent is composed of a variety of languages and dialects that intersect at the borders between countries. For countries sharing a border it is essential that due emphasis is placed on knowledge of languages on both sides of the border and for first responders and crisis managers to have the opportunities to have access to and understand terms employed across the border in crisis response scenarios. It has also been noted that in some cases preference is attributed to one language over another leading to miscommunication.

Recommendation

Semantic interoperability : create a European library of terms that feed maps and applications in multi-lingual settings

Rationale

The 38 border regions of the EU are marked by geographic and linguistic barriers, as well as by contextual differences in response procedures and warning signals during crises. First responders and crisis managers who are involved in cross-border crises require information on the linguistic and contextual differences of the scenarios they operate or *could* operate in to minimise the risk of miscommunication, the assignment of responsibility during a crisis scenario and the identification of risk objects and latent vulnerabilities.

Issue

Cross-border communication: As outlined in WP2 and WP3 as well as in the typology of communication challenges, establishing a hierarchy of responsibilities and jurisdictional relations in cross-border crisis response scenarios is essential for the smooth running of operations during a crisis (as well as prior to and after). *Who* is in charge should be clearly established, as evidenced by the case studies in WP3 where uncertainty over who was responsible for running response procedures created confusion (see example of Enschede fireworks factory explosion and Galtür avalanche).

Recommendation

Introducing definitions of jurisdictional relations between actors involved in crises. Hold cross-border workshops with crisis managers and infrastructure providers to foster knowledge about each other's jurisdictional relations as well as a common understanding of communication relations and needs.

Rationale

Research conducted in WP 3 on past crises revealed that 'disrupted or even failed coordination of actors during crisis management is an important trigger for cascading effects'. A lack of coordination of crisis plans and agreements on organisational responsibilities were found to have led to cascading effects in these crises. The establishment of clear jurisdictional responsibilities and a clear definition of relations between actors involved would facilitate the execution of crisis response responsibilities. Additionally, in order to facilitate coordination, inter-organisational and cross-sector communication, first responders, crisis managers and critical infrastructure providers need to be able to discuss issues, procedures and response plans in order to gain an understanding of the full operational picture during a crisis and actors' specific responsibilities and roles.

Issue

Cross-border communication: Although the Monitoring and Information Centre (MIC) provides a centralised European communication node for the transfer of crisis related information, this is focused on communicating needs and assistance between national points of contact. Regional authorities for cross-border relations are required to manage the flow of information from a crisis scenario to the relative media and general public on both sides of the border. As outlined in WP2, the maintenance of a relationship of trust between the media, public and first responders and crisis managers is essential for the smooth response to a crisis. Mishandling of information during a crisis can foster distrust and further misinformation.

Recommendation

Common cross-border directive for the provision of information to the media and the public

Rationale

Past crisis scenarios (WP3) have revealed that during a crisis, differing levels of information from responsible authorities on an unfolding crisis may cause uncertainty, suspicion and even panic. In order to avoid contradictory information emerging from various responsible authorities and to enhance public trust in the responsible authorities, it is recommended that a single common cross-border authority be attributed with the responsibility for dispensing and managing information to the public and the media, in order to limit impediments to first responders and crisis managers from carrying out their duties.

ADDITIONAL SPECIFIC RECOMMENDATIONS

The DOMINO conference and workshop series, held in Zwijndrecht, Netherlands between 20 and 22 May 2015 attracted almost 200 domain experts active in crisis management. The event focused on a flooding scenario and included demonstrations of crisis management systems in mobile field command centres. It exposed participants to front-line users and their working situations. Presentations by DG-ECHO, the Dutch Ministry of Security, and the Dutch Water Board discussed the implementation of EU Security Policy at various governmental levels. These were followed by 12 workshops dealing with future requirements for crisis management systems, including information exchange requirements and support systems for information exchange. Together with the Doetinchem cross border workshop, the DOMINO conference provided a platform for debate and the exchange of ideas between crisis managers and first responders. The recommendations provided in this chapter were collected from practitioners attending both these events and reflect and build on the results communicated in WPs 3-5.

Issue

Information-sharing: As outlined in the Enschede Fireworks Factory Disaster in 'Crisis Case studies of cascading and or cross border disasters' (Deliverable 3.1), the amount of fireworks stored in the factory 'exceeded the maximum kilos that was [legally] permitted to be stored. In addition, the fireworks were of a more explosive nature than the company's permit allowed, and not all was stored in adequate facilities' (See also the Seveso disaster of 1976 for a similar example). Despite the Seveso Directive, that expands policies related to the protection of critical infrastructure, the location of risk objects and their management remains an issue in the context of information sharing for cross-border crisis management. First Responders and crisis managers do not always have a full picture of the risks and vulnerabilities on both sides of the border in a cross-border incident (see WP2).

Recommendation

Create incentives for exchange of geo-information about risk objects and vulnerabilities, especially in the border areas

Rationale

Past crises have revealed that a lack of information sharing of critical vulnerabilities and risks along border regions in Europe has further accentuated the risks to first responders and crisis managers involved in cross-border operations (see WP3). In order to minimise these risks and the possibility of cascading effects during crises, incentives for the mutual exchange of geo-information about such risks need to be created. For example, creating an awareness of the cost-savings to result from the sharing of geo-information could be one such incentive.

Issue

In a crisis scenario, several first responders and crisis managers have to work together simultaneously to respond to the crisis. The interoperability of their models is a crucial aspect of the lead up to the successful management of a crisis. Operational models may vary across countries and teams will have more familiarity with one crisis scenario over another. To facilitate the successful response to and coordination of a crisis scenario it is essential to ensure the interoperability of models for rapid and efficient crisis response.

Recommendation

Model interoperability; create a European library of models that indicate estimates (such as forest fire, toxic gas dispersion, flooding effects, among others)

Rationale

In order to create shared situational awareness during a crisis and to recognise the multi-actor response requirements during a crisis, a European library of crisis models is needed. Such a library could provide critical information and estimates for a host of different crisis scenarios ranging from natural disasters such as seasonal flooding and forest fires to technological disasters. A European library of crisis models would enable first responders and crisis managers to work more efficiently and rapidly in parallel in responding to crises and allow for a more integrated European crisis response structure.

Issue

In order to ensure that a crisis is tackled at all levels, a complete view of the crisis management structure is required. In the context of cross-border cooperation responses to crises, defined escalation paths are required that move beyond National escalation paths. Response time for National agencies are often delayed and limited in their capability. In order to ensure rapid cross-border cooperation, jurisdiction maps limited to core requirements and data on the actors involved, their roles and contact information should be encouraged as part of the information exchange.

Recommendation

Encourage jurisdiction maps as part of the information exchange, as well as the exchange of maintainable data such as data on people, their roles and contact information to support rapid cross-border cooperation

Rationale

As identified in the crisis case studies in 'Crisis Case studies of cascading and or cross border disasters' (Deliverable 3.1), a lack of knowledge of jurisdiction across borders, as well as key personnel and their roles in the management of crises caused serious delays in response to incidents. Confusion over roles and how they may be coordinated cross-sector during a crisis response affected the transfer of necessary information for effective response to crises. Maintaining an informed and up to date outline of the relevant structures and key personnel and their roles will facilitate rapid and effective response to a crisis and will enable coordination between the various actors involved.

Issue

As evidenced by the results presented in 'Map of stakeholder inter-relationships and ecosystems' (D3.2), cross-sector coordination is a significant factor that would aid in reducing or preventing the risk of cascading effects during a crisis. Participants in the DOMINO workshop have also indicated that there is little natural incentive for cross-sector coordination and preventative planning. This results in a cross-border crisis becoming a cross-sector problem on each side of the border.

Recommendation

Encourage cross-border preventive planning that involves cross-sector coordination and cooperation across both sides of the border.

Rationale

An analysis of the inter-relationships between sectors in D3.2 revealed that lack of coordination between various sectors affected by a crisis acted as triggers for cascading effects. For example, during the French heat wave in 2003 a lack of coordination between the energy sector and the health sector led to deaths that could have been avoided by pre-crisis planning and coordination between the teams involved. Encouraging mock ups and scenario planning between various sectors would counter triggers for cascading effects and contain the negative impact of a crisis scenario.

Issue

Transportation is a vital aspect of crisis management that is often overlooked because many transport agencies are not considered to be public entities. As outlined in chapter 2 of this document, the EU CPM recognises that one of the major issues during a crisis is the transportation of response teams to the scene of a crisis and the transportation of members of the public away from the scene, as well as the transport of vital materials to and from the scene of a crisis incident.

Recommendation

Encourage inclusion of transport agencies in crisis response planning.

Rationale

The inclusion of transportation agencies in crisis response planning will allow first responders and crisis managers to know what transportation infrastructures and flows are available to them during a crisis and to plan accordingly. Including transportation agencies in response planning and crisis response drills will encourage coordination between sectors, facilitate the flow of critical information and materials, and allow for the identification of proven and tested evacuation plans.

Issue

When a crisis scenario takes place the extra costs of a swift response are weighed against the benefits of a less costly response procedure. The time taken for financial procedures to be approved by higher level officers may result in an increased probability of triggering cascading effects. One such example is the capsizing of the acid tanker near Lorelei on the river Rhine. In this case a delayed response resulted in queuing of shipping vessels and stock-piling due to delays.

Recommendation

Separate post-crisis financial issues from crisis management operational issues.

Rationale

Separating crisis financial issues from crisis management operational issues will ensure that crisis response can be carried out in a rapid, efficient and coordinated way. This will minimise both the direct and indirect costs of a crisis incident and minimise the risk of triggering cascading effects.

SUMMARY

The FORTRESS tools, the FORTRESS Scenario Builder (FSB) and FORTRESS Incident Evolution Tool (FIET) raise awareness about the interdependencies between infrastructures and systems. They provide a platform for inter-organisational communication and coordination before, during and after a crisis and facilitate, in a way that other tools do not, a holistic and collaborative approach to the response and management of the full spectrum of possible crisis scenarios. By highlighting interconnections that exist the tools provide end-users with a platform for predicting possible cascading effects during a crisis. The tools thus represent a joint knowledge base that can foster inter-organisational communication. By providing a platform for the exploration of possible crisis scenarios, end-users are motivated to discuss the different roles that are played out during multiple crises, as well as *who, what and where* will be affected. The policy recommendations outlined in this deliverable emerged directly from the experience of researching the information flows of past crises, as well as the process of designing the requirements for the FORTRESS tools.

The objective of this deliverable was to highlight the lessons learned from the inter-organisational communication that characterised the development of the FORTRESS tools and, to translate these lessons into policy recommendations that would improve cross-border communication at a regional and European wide level and, to limit triggers for cascading effects in crises.