
Success and failure factors in EU transboundary crisis management: A review

Claudia Berchtold, NEEDS₃, 22nd March 2018

Background I

- Horizon 2020 project (IA) IN-PREP → developing an integrated preparedness platform for transboundary crisis management
- What are success and failure factors in transboundary crisis management in the EU?
 - Develop an analytical framework
 - Conduct a literature review
 - Conduct semi-structured interviews (about 90 minutes) with crisis management (CM) organisations across the EU
 - 7 CM organisations (Health Service, Police Services, Fire Service, Crisis Management Organisations)
 - 6 Member States (DE, IRL, UK, IT, GR, NL)

Background II

- Specific challenges in transboundary CM (e.g. Boin & Rhinard, 2008):
 - characterised by crossing geographical and functional boundaries
 - more crisis management actors (and victims)
 - divergent agendas and contexts
 - actors are less acquainted with each other as compared to local crises
 - analytical and managerial challenges
 - with respect to rapid information sharing
 - coordination across organisational, political and professional boundaries

Background III

■ Definitions:

- CM as part of the Disaster Risk Management (response), i.e. a certain harm has materialised
- In contrast to conceptualisations of crisis which frame it as “a time of intense difficulty or danger” (Oxford English Dictionary) and locate it in the context of general social, economic, or political instabilities which need to be governed

Background IV

- Transboundary capability gaps vary between nation states and even between individual actors
- EM-DAT data base has registered 1.557 natural, technical and complex disaster incidents for Europe between 1998 and 2017 (Université catholique de Louvain [UCL], 2018)
- Literature available usually on:
 - Certain large-scale events such as London bombings, Hurricane Katrina etc. (e.g. Parker & Paglia, 2012, Alexander, 2012, Leonard & Howitt, 2010)
 - Certain analytical dimensions such as political-administrative challenges (for example Ansell, Boin, & Keller, 2010)

FRAMEWORK DEVELOPMENT

Disaster Risk Management (DRM) and Assessments

- In the DRM community, risk assessments are an established tool for decades (for example Blaikie, Cannon, Davis, & Wisner, 1994; contributions in Ingleton, 1999; or Birkmann, 2006 and 2013)
- Frameworks usually encompass
 - Concepts
 - Indicators or criteria to describe (assess) the conceptual categories
- They frequently focus on prevention and preparedness aspects
- The development of an assessment framework for transboundary response adds conceptual value

Framework development - aims

- Structure the challenges and solutions identified by existing literature
 - Considering the variety of CM actors and the tasks they have to fulfil
- functional approach developed by Stolk et al. (2012) who clustered actors according the main operational (on-site) task they fulfil

Framework Development - assumptions

- “successful disaster management results from emergency organisations coping well with certain problematical matters. In particular there tend to be [...] problems with respect to:
 - the communication process and information flow;
 - the exercise of authority and decision-making; and,
 - the development of co-ordination and loosening the command structure”

(Quarantelli, 1988, p. 375 but similarly for example Ansell et al., 2010).

→ Certain managerial tasks are shared among these organisation clusters

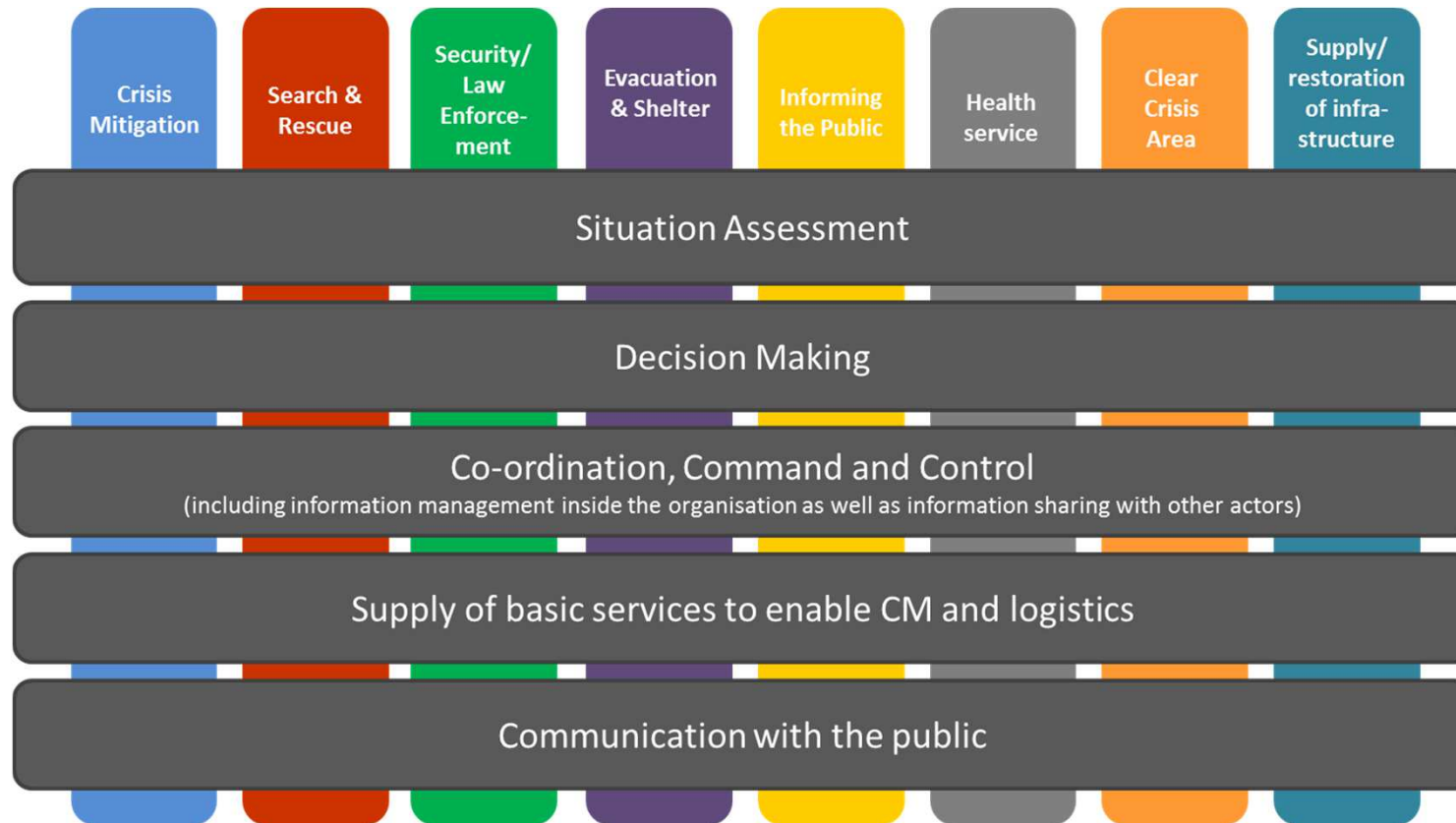
Conceptual Framework for assessing transboundary CM (reponse) capabilities I



Conceptual Framework for assessing transboundary CM (reponse) capabilities II

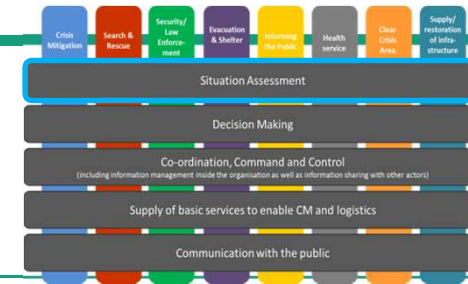
Managerial Tasks in Crisis Management	
according to (Wybo & Kowalski, 1998)	according to (Stolk et al., 2012)
<ol style="list-style-type: none">1. perception (data collecting and processing);2. analysis (decision making);3. communication (inside organisations); and4. information (communication outside organisations)	<ol style="list-style-type: none">1. Co-ordination, Command and Control2. Situation assessment3. Information management/distribution4. Monitoring/Information gathering5. Supply of basic services to enable CM6. Logistics

Conceptual Framework for assessing transboundary CM (reponse) capabilities III



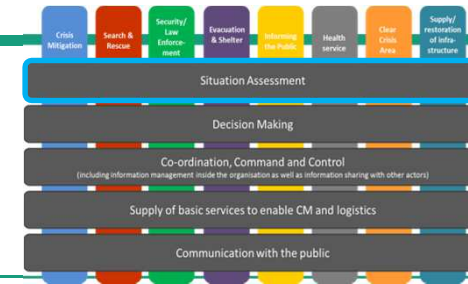
SELECTED FINDINGS

Situation Assessment



- Continuous collection, processing and monitoring of data from different sources to derive information about the cause of the crisis and its evolution
- Early-warning systems (overarching and relating to specific disaster types)
 - based on weather stations, cameras or other forms of sensors;
 - including model-based prediction tools which forecast for example weather or flooding or the development of forest fires

Situation Assessment



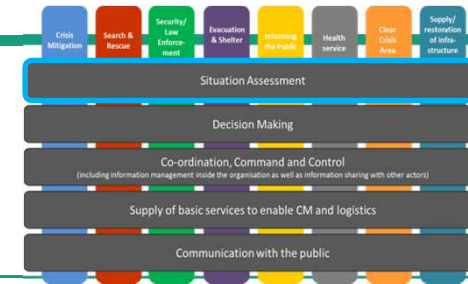
■ Sensors:

- generated by satellites or (un-)manned vehicles (e.g. drones) and translated into GIS data formats
- cameras embedded in civil infrastructure, dispersed at the crisis site or carried by first responders
- integrated in buildings such as fire detectors, smoke detectors, temperature, humidity, luminosity or door sensors (opened/closed) allowing algorithms to derive higher level information

■ Participatory sensing:

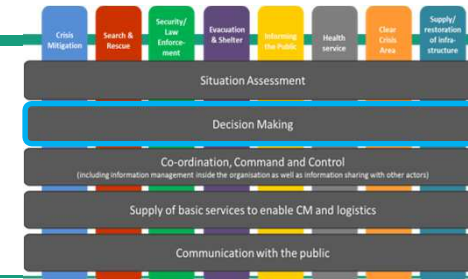
- first responder interactions
- public (eye witnesses) as information source; geo-mapping and exploitation of social media

Situation Assessment



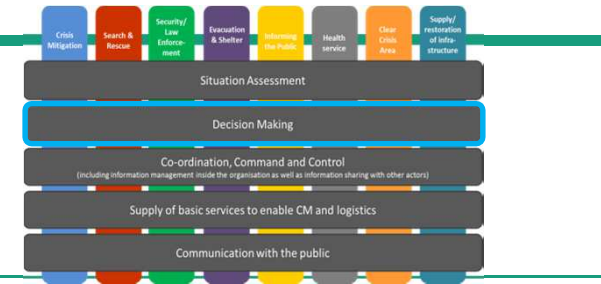
- Technologies are hardly applied (in few cases sensors, GIS tracking of resources)
- Information is frequently passed on manually
- Social networks are used as an additional but not formalised source for Situation Assessment (e.g. pictures from the event site)

Decision making



- Two main ways of decision making and information sharing can be found in the literature:
 - *Hierarchical* chains of command and control (C2) within crisis management and
 - *Cooperative ways* of crisis management which can be characterised as more *decentralised decision making structures* (Groenendaal, Helsloot, & Scholtens, 2013).
- Decision making can
 - be facilitated by decision support tools to overcome inherent human limitations (Simon, 2013)
 - help to facilitate rapid but informed decision making
 - support the assessment of information, suggest decision making options and integrate scenarios
 - Again: hardly applied

Decision making



- Collaboration structures need to be determined
- Several nation states have set up frameworks to structure their collaboration. Examples:
 - UK interoperability framework
 - IRL Framework for Major Emergency Management
- Other states have set up central information and decision-making hubs, e.g. municipal civil protection offices
- Corresponding structures are however missing in other Member States and collaboration patterns follow regional specificities

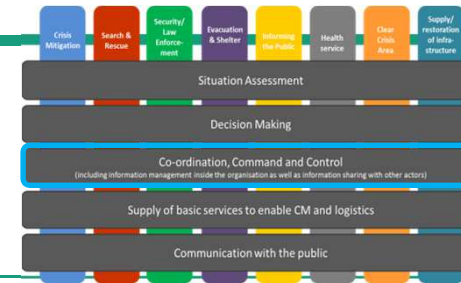
Co-ordination, Command and Control



■ Information management:

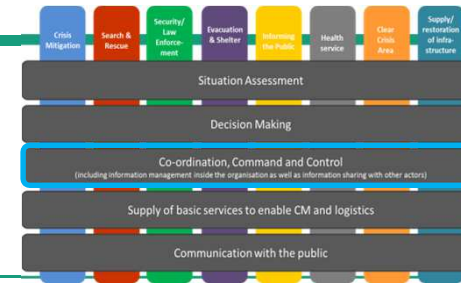
- Structures and technologies are usually applied within one organisation and do not facilitate information exchange with other organisations
- More advanced technologies are frequently hardly employed (exception: electronic versions of blogs or log-keeping systems)
- Manual methods using radio and email communication as well as pencil and paper or White Board remain prevailing for intra- and inter-organisational information exchange

Co-ordination, Command and Control



- Information management systems that also allow for a sharing of information with other actors are used by few Member States:
- For example established in the Netherlands:
 - LCMS information management system supports the development of a Common Operational Picture and also records actions taken by the individual organisations
 - It links information through GIS to the emergency site so it can be shared with others

Co-ordination, Command and Control



- An *asset registry* was developed by the UK police
 - It contains information on available resources and capabilities, giving an overview on available resources and capabilities including also the training level of staff e.g. for the use of certain equipment
- Helps to overcome the focus on a plan and allows for flexible response

Results summary I

- Lack of use of technologies for situation assessment and information sharing...
 - impedes the electronic and thus fast sharing of major amounts of information (with other organisations) – efficiency gains are lost
 - leads to high volume of emails exchanged and potentially time-consuming tracking of progress of a particular issue or request
 - leads to difficulties in storing information in a prolonged crisis

Results summary II

- Information remains scattered across political and geographic boundaries
- Signals from different surveillance systems can usually not be brought together in a useful manner
- Decision making in transboundary crisis could be strongly improved by sharing information about the individual situation assessment and developing a Common Operational Picture (COP)

Conclusion – Discussion – Further research

- Of course, political, legal and social factors exist that limit the potential for collaboration and the use of technologies, but the mismatch between available technologies and their application in CM seems to be quite large
- Have a look at (potentially) underlying reasons
 - Market failure for solutions in the civil security sector
 - Mismatch between available solutions and actual need
 - Mismatch between (frequently) hierarchic civil protection systems and the need for collaborative approaches

Conclusion – Discussion – Further research

- Further analyse the potential for assessing response capabilities from different angles
- Develop/validate indicators/criteria for assessing transboundary response capacity

Literature

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Thank you!

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