BuildERS

# D2.2 CASE COUNTRY ANALYSES AND A CROSS-COUNTRY COMPARATIVE ANALYSIS OF THE FUNCTIONING OF DISASTER RESILIENCE SYSTEMS

**Project acronym:** BuildERS

**Project title:** Building European Communities' Resilience and Social Capital

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# Executive Summary

The aim of the current report is to explore the similarities and differences in interpretations and functioning of the various dimensions of resilience and crisis management across Europe. To meet this aim, the study pursued following objectives: to clarify the background on threats and structure of crisis management and resilience approaches in the selected country cases; to explore the ways in which the vulnerable groups are addressed; to elucidate the role of social support networks and volunteers in resilience management. We explored the institutional aspects of resilience governance in Europe by an example of the BuildERS project countries Estonia, Finland, Sweden, Norway, Germany, Hungary, Italy, and Belgium. The study followed the BuildERS D2.1 Study protocol for conducting document analysis and expert interviews in case study countries. Over the period of September 2019 - February 2020, partners carried out desk research – using publicly accessible documents and secondary literature. To complement the answers gathered in desk research, semi-structured expert interviews were conducted. Furthermore, the study of crises cases enabled to understand what national resilience/crisis management institutions have actually done in cases of crises at hand.

**The results of the study** indicate that societal resilience tends to be mainly fostered through information campaigns that shed the responsibility for preparation on individual, with little scrutiny of the scope of necessary capacities for coping in crisis. We argue that "self-help" version of resilience dominating among the studied countries may exacerbate vulnerabilities by reinforcing social inequality. By contrast, state-sponsored resilience activities, whereby authorities focus on making society as a whole resilient, may prove more equitable and effective in the long run. Individual vulnerability is conceptualised primarily related to the individual capacities: personal readiness and social conditions (poverty). Efforts to respond to the needs of vulnerable individuals are concentrated on the municipal level. Yet they tend to have limited guidance on how to assess individual vulnerability and what could be the ways to address these vulnerabilities in preparing for, responding to and recovering from crises. There is no systematic approach to building social support networks as part of resilience building. Authorities tend to have poor knowledge of which informal support groups exist and how to work with them practically in crisis situations.

We set forth following **recommendations** to policy-makers and crisis managers: to foster public debates regarding the extent to which resilience could be expected from the members of public and communities or be granted by the authorities. Care should be given in ascribing vulnerability to some people as this may cause a risk of homogenizing this group according to a single personal characteristic and stigmatising this group as vulnerable. Instead, the ways of approaching individual vulnerabilities must be seen as dynamic and open, evolving together with the societal threats faced by a community. Local governments tasked with offering support during crises need more systematic guidelines for assessing and handing the vulnerabilities. In case the official responders consider volunteers as a necessary resources in building resilience, more systematic approaches to encouraging volunteerism including social support networks needs to be established. That includes, for example, investing means to support the work of community organisations to strengthen social networks that could be relied on in times of crises.

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# List of Acronyms

| | |
|---|---|
| Ab | Advisory board |
| Builders | Building European communities resilience and social capital project |
| D | Deliverable |
| Doa | Description of action |
| T | Task |
| UN-ISDR | United Nations Office for Disaster Risk Reduction |
| Wp | Work package |

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# CASE COUNTRY ANALYSES AND A CROSS-COUNTRY COMPARATIVE ANALYSIS OF THE FUNCTIONING OF DISASTER RESILIENCE SYSTEMS

## 1. Introduction

The overall focus of the BuildERS project is to help improve government policies aimed at enhancing the disaster resilience of European populations, with a focus on disadvantaged groups and the effects of false information. The aim of this report D2.2 is to explore the similarities and differences in interpretations and functioning of the various dimensions of resilience and crisis management across Europe. We seek to develop a more systematic understanding of general patterns of resilience management practices. Accordingly, the study focuses on three objectives:

- to clarify the background on threats and the structure of crisis management and resilience approaches in the selected country cases;
- to explore the ways in which the vulnerable groups are addressed;
- to elucidate the role of social support networks and volunteers in resilience management.

The deliverables within WP2 provide a comparative assessment of institutional aspects of resilience management. D2.1 established a protocol with a taxonomical framework for conducting document analysis and expert interviews in case study countries that feed into this report D2.2. Whereas WP1 sets out important background information as for theories, approaches on vulnerabilities and social support in crisis cycle, the D2.2 explores the application of these notions in practice in various country systems. D2.3 reports on country cases in social media campaigns and official responses to the diffusion of false information that are also illustrated in WP6. D2.2 offers insights to the D2.4 that catalogues the tools, technologies and media opportunities in particular types of disaster management systems that are further tested in WP4.

According to D1.1, **vulnerability** is understood as “the situational capacity of individuals or groups to access adequate resources and means of protection to anticipate, cope with and recover from the exposure and impact of natural or man-made hazards” (p. 14). In line with that, vulnerability is influenced by factors on the social and the individual level. On the one hand, vulnerability is shaped by the individual’s situation, including their physical and mental conditions, social capital, and the acute situation this person is in. On the other hand, people’s vulnerability is influenced by broader social factors, including:

- the fundamental societal challenges such as inequalities in the distribution of wealth and power, education

- the society-specific dynamic pressures, such as poverty, climate change, and immigration,

- specific institutional arrangements and policies for dealing with crises in a given society.

To reduce vulnerability and increase resilience, the BuildERS project argues, it is necessary to address the individual’s situation as well as the broader social factors shaping his coping in crisis. This report focuses on the role of institutional arrangements, rules and structures, and how these affect the resilience of individual and groups.

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**Crisis management systems** are defined broadly as the national institutions, structures and policies assigned to protect against threats to the security of people and the functioning of critical infrastructures. Our study also looks at the extent to which **resilience** features in national planning. By resilience we mean the ability of societies to withstand crisis conditions and maintain its normal functioning. By resilience-building we mean the procedures and resources used for enhancing individual and societal resilience.

**Crises** are defined as the interplay of materialising threats to the well-being of people as well as the provision of services by critical infrastructure and the vulnerability of a society (UNISDR). However, what is addressed as crises is a matter of judgement shaped by institutional interpretations and practices ingrained in a particular country context (Boin, 't Hart, & McConnell, 2009). In this study, we explore crisis cases that exemplify how the various resilience/crisis management systems define and handle the threats that have plagued or struck European societies in recent years. We will limit our scope of analysis to crises that are mainly national in scope, although some of those may include regional (i.e. EU) involvement.

## 1.1 Material and methods

In this report, we explore the institutional aspects of resilience management in Europe from a selection of the BuildERS project countries: Estonia, Finland, Sweden, Norway, Germany, Hungary, Italy, and Belgium. The study followed the BuildERS D2.1 Study Protocol for conducting document analysis and expert interviews in case study countries over the period of September 2019 to February 2020. To complement the data gathered via desk research, semi-structured expert interviews were conducted. Information collection and analysis was structured along the following analytical dimensions:

A) Background on threats, structure of crisis management, and resilience approaches

B) Addressing vulnerable groups in resilience management

C) The role of social support networks and volunteers in resilience management

D) The role of misinformation and social media in resilience management

E) Case studies of actual crises

The role of misinformation and social media in resilience management (section D) will be explored in WP2 D2.3 due in April 2020.

**Document analysis.** Much of the information required for this task was gathered via desk research. Relevant documents included:

- Legal acts/ regulatory documents, including guidelines
- Official policy documents and strategies
- Reports produced by think-tanks, research institutions, NGOs
- Media articles

**Expert interviews.** To complement the document analysis and to verify information already gathered, semi-structured expert interviews were carried out. Expert interview is often the most effective way for obtaining information about decision makers and decision-making processes when the respondent is the expert in the topic at hand (Burnham et al. 2008). The interviewees included public officials working in national government departments and agencies tasked with resilience management. They were identified

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on the basis of desk research and by applying the snowballing technique were informants guided researchers on to other relevant informants. Interviewees were determined according to their specialisation and professional status or academic record.

**Analysis of cross-country datasets.** We have used 2015 data on social support and voluntary involvement from the EU statistics on income and living conditions (EU-SILC) retrieved from Eurostat (https://ec.europa.eu/eurostat).

**Analysis of crises cases.** The case studies of a number of actual crises are provided to illustrate what national crisis management institutions have actually done to address emergencies and what were the lessons learned. Case studies sought answers to the following questions: Which groups were affected the most? How did institutions manage vulnerable groups during the crisis? What role did the volunteers play during the crisis? We considered a broad range of natural as well as man-made crises:

- **Drinking water contamination in Nousiainen, Finland**. In January 2017, a broken water pipe lead to the contamination of drinking water in a town with 5000 inhabitants. In the period before establishing the connection between the pipe break and the contamination, hundreds of people suffered from the spread of stomach disease. The residents were informed of the suspicion of contaminated tap water, chlorination was started, and water boiling warning was published. Messages were distributed on the municipality's website, on municipality's Facebook, at the doors of shops and supermarkets, and via an email list to the local councillors and authorities.

- **Terrorist attack on government building in Oslo and at the island of Utøya, Norway**. On 22 July, 2011, Anders Behring Breivik detonated a home-made explosive outside the main entrance of the government building, killing eight people. Shortly thereafter, he started shooting at people in a youth camp on the island Utøya, killing 69 and injuring 110 people. Some people hid themselves indoors and in tents, some tried to swim or take a boat over to the mainland. As official information was unavailable, individuals used social media to piece together the overall picture of the emergency situation.

- **Increase in asylum seekers in 2015 in Sweden**. 162,877 persons applied for asylum in Sweden in 2015 (Migrationsverket, 2018:4). The Government Offices operated in accordance with its crisis management structure, which initially worked well. In the so-called refugee crises, problems arose from poor information provision and discretionary handling of cases of asylum. Due to lack of clear structures and division of responsibility in the crisis, communication was often delayed or inaccurate. In many cases, volunteers and NGOs provided information. Misinformation affected all groups of asylum seekers, particularly refugee children and migrants with disabilities (SOU, 2017).

- **Terrorist attack on Brussels airport and metro.** On 22 March, 2016, terrorists triggered explosions in airport Zaventem and Maalbeek metro station in Brussels. The Belgian Red Cross transported more than 100 wounded people to 16 hospitals. The Red Cross mobilised nearly 400 people in response to the attacks, deploying emergency medical and psychosocial services and evacuating individuals affected by the bombings. Social workers from the Red Cross were tasked with reuniting families and following-up on other needs (such as stranded tourists).

- **Critical infrastructure failures in Southern Estonia:** In October 2019, a major storm led to a power outage and disrupted several other electricity dependent critical infrastructures in Southern Estonia. 62,000 households were affected by the power outage. The majority of these households were reconnected to the power network within 24 hours, while around 8,000 remained without electricity for five or more days. Most of the households were located in apartment buildings, where alternatives to central heating, water and sewerage systems were not available. In addition, the local hospital was without power for eight hours and could not admit any new patients. The power

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outage affected the telecommunication systems. This meant that individuals could not get information; reach rescue services on the phone neither send information about their situation.

- **Flood disaster in Germany in June 2013.** Between 31 May and 2 June, 2013, heavy rain led to flooding in Southern and Eastern federal states of Germany. Along numerous rivers, the water rescue and mountain rescue service of the German Red Cross evacuated private households and nursing facilities. In the city of Dresden and the surrounding area in Saxony, 15 thousand people were evacuated and accommodated in emergency shelters, and 30 thousand in the city of Halle. The overall disaster damages were estimated to be the highest ever recorded in the country's history. In the event issues arose regarding the way in which groups such as elderly, care recipients and persons with disabilities were considered.

- **Snowstorm in Hungary in March 2013.** The snowstorm paralysed almost half of Hungary by 15 March 2013. Hungarian Meteorology Service gave warnings 24/48 hours before the arrival of the storm. A snowstorm brought 3 meters high drifts and violent gusts of wind. Trucks jack-knifed across the key highways, causing traffic jams. Massive drifts severed 160 roads and disrupted five railway lines. Thousands of people were stranded in cars stuck in the snow and had to spend the night in cars or in emergency shelters. Over 100 people were injured in traffic and snow-related accidents. Police set up a task force, warning messages were broadcast via TV, radio and sent over SMS. 1500 professional and around 400 volunteers were involved in emergency response.

- **Earthquake in L'Aquila, Italy, in April 2009.** The earthquake on 6 April 2009 in Abruzzo with a moment magnitude (Mw) of 6.3 affected a large part of Central Italy, particularly the city of L'Aquila. It was the most damaging seismic event of the last decade in Italy, leaving 309 dead and over 1600 injured, and causing estimated damages of 10 billion Euros (Dolce & Di Bucci, 2017, 2018). The crisis was managed by the Civil Protection Department and the entire national system was mobilised. Just 48 hours after the earthquake, the units on the ground included 2400 firefighters, 1825 soldiers, 1586 law enforcement, and thousands of volunteers from the Civil Protection.

Based on the document analysis, interviews and crisis case analyses, BuildERS country partners provided (1) an answer sheet where brief answers to questions were inserted into an Excel spreadsheet, and (2) a longer country study narrative in Word document template with a more detailed qualitative account about resilience management as a basis for writing a cross-country comparative report.

**Qualitative analysis across country cases.** The aim of this study is to clarify the similarities and differences in interpretations and functioning of the various dimensions of resilience and crisis management across. The collected primarily qualitative material offers basis for analysis of similarities and differences in interpretations and functioning of the various dimensions of resilience and crisis management across Europe. We seek to develop a more systematic understanding of general patterns of resilience management practices. We are not interested in macro-level indicators or quantitative data as much as practitioners' rich culturally, historically, politically, and institutionally situated accounts and insights about vulnerability and resilience in particular emergency contexts. The study does not involve comparing different timeframes.

We compare narrative answers to a concrete set of questions specified in the Study Protocol D2.1. We look for major commonalities and differences in the ways in which vulnerability and social support networks are defined and treated in very different political/administrative systems. We highlight responses from different countries, which provide insights into existing practices, including novel approaches to, resilience management among policy makers, emergency managers, and volunteers. The study allows us to offer illustrations demonstrating fruitfulness and shortcomings of particular resilience management practices/models and develop a typology of the various dimensions and practices of resilience management in Europe.

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**Delimitations.** Comparative research has some typical limitations, which inevitably apply to this study. These include:

- Participating countries have considerable geographical differences (e.g., size, climate, landforms, seismicity) and face different natural (earthquakes, flooding, landslides) and technological threats (e.g., from dangerous materials or disruptions in power supply) and therefore vary in terms of what types of crises are most common. Practices and insights regarding different types of crises may not be easily comparable along the same analytical dimensions. Yet eight country cases involved in this study allow for some generalisability of our findings.

- Exploration of parallels and differences in participating countries is complicated by language differences. People in different language communities may use very different terminology (and sometimes may not have specific vocabulary available) when talking or writing about certain emergencies, vulnerability, resilience or social support networks.

- The amount of detail in country reports may differ due to the varied availability of relevant documents and interviewees. As a mitigation measure, the saturation of information pertaining to the research questions is an advised strategy (Fuchs & Ness, 2016). This was a general principle followed in the country studies.

- Comparison of qualitative/narrative data is necessarily interpretive (i.e., focused on understanding meanings, assumptions, and practices observed in particular contexts) and completely equivalent measures for comparing narrative answers cannot be established. While country cases have been researched by analysts who reside in and are generally familiar with the crisis management systems in their respective countries, the extent to which particular socio-cultural, historical, and institutional contexts of each country case are understood by the particular analyst may vary. Thus, our conclusions should be seen as suggestive rather than definitive.

### Structure of the report

The presentation of country cases follows the research questions set for the BuildERS Task 2.1 and 2.2. We will first give a background on the variety of risks considered and the institutional rules, practices and architectures in place in various BuildERS countries to handle extreme events. Second, we look into how the concept of vulnerability is understood in crisis contexts and what the associated regulations and strategies are in different countries. Third, we explore the extent to which unofficial support is acknowledged and encouraged by the state, and in turn, we flesh out the ways in which social support networks and (institutionalised) volunteerism support official actions. We conclude the report by offering recommendations on how vulnerabilities can be alleviated and resilience built through improving institutional arrangements, supporting social networks, and encouraging initiatives to make individuals, groups and societies more robust in facing future risks, crises and disasters.

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# 2. Background on threats, structure of crisis management, and resilience approaches

The case studies in the BuildERS project involved asking incisive questions as to how resilience/crisis management structures in different countries are structured, which dominant threat perceptions exist, and to what extent resilience is recognized as a policy goal. The aim of the analysis is to understand the intrinsic benefits and drawbacks to different kinds of systems, and to inform future policy decisions.

Different threat categories are shaped by a nation's perceived threat environment and broader trends in security thinking. Such threat perceptions matter because they implicate where societal resources are likely placed. For example, prioritisation of military threats will determine the focus on areas of preparation and selection of vulnerable groups to be supported. In the BuildERS project, we are interested in how the actors involved in crisis management in our study countries perceive different kinds of threats, and how those threats are assessed.

The national systems currently in place in Europe – and across the world – are the result of decades of organisational evolution. They are very much path-dependent – the products of local culture and customs – but also shaped by global trends not only in crisis management but also in organisational reform. During the Cold War, policy makers' focus was often on external threats and militaries took the lead in designing civil protection structures. In the 1990s the focus shifted to unintentional, non-military and non-territorial threats (Stiglund, forthcoming), including threats to the basic functioning of societies (Sundelius, 2005). The 2000s saw the diversifying of the risk assessment landscape, with the return of antagonistic threats, including terrorism, along the unintentional threats such as disasters and pandemics (Taleb, 2010). More recently, the 2010s saw the return of 'known', military threats, according to some authors (Mead, 2014).

## 2.1 Threat perceptions

Since one factor shaping resilience/crisis management systems is threat perceptions, we kicked off our survey with the following three questions: **W*hich threats are assessed as having the most negative effects on the well-being of people and functioning of critical infrastructure in your country? What categories of threats are more prominent: unintentional, intentional, known, or unknown?***

The country studies revealed some patterns in threats that are prioritised in emergency planning. As for the **natural threats**, all the country reports mention the threats related to climate change and particularly extreme weather events. Relatedly, all the countries consider floods as a major threat as well as landscape fires (except in Finland and Norway). A majority of the countries bring up the threats related to epidemics that are related to global changes, including climate change. Due to the geological situation, volcanic eruptions and earthquakes are only prioritised in risk assessments in Italy and Norway.

Among **man-made threats**, all the countries, except Hungary and Italy, consider terror attacks (including international terrorism) as a potentially impactful threat. School shootings in particular are brought up in risk assessments by Norway and Sweden. Military threats are considered in Finland and Sweden.

**Indirect man-made threats** arising from migration - due to influx of refugees, asylum seekers or migrants - are at the focus of Estonian and Finnish risk assessments. These do not appear in risk assessments in other countries.

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**Industrial and technology-related threats** are mentioned in most of the country cases. Among technology-related threats, nuclear accidents and radioactive hazards are addressed by the emergency risk assessments in Hungary, Norway, Finland, and Estonia. The release of other toxic materials is brought out in risk assessments in Germany, Belgium, Norway, and Hungary. Major transport accidents are considered threatening in Germany, Belgium, Norway, and Estonia.

The **malfunctioning or breakdown of critical infrastructures** is listed among major risks in all the countries in our survey. Next to the provision of water, electricity and fuel, risk assessments in the studied Northern European countries (Estonia, Sweden, Finland, Norway, and Germany) also bring up the issue of operability of the electronic communication sector as a critical infrastructure.

**Cyber threats and information operations** are prioritised in the Northern European countries and Hungary. Risk assessments in Estonia, Sweden, Finland, Norway, and Germany outline consequences related to digital attacks, for example, on the financial infrastructure. Related to the cyber threats, the Estonian, Swedish and Finnish documents mention the risks associated with the (malicious) spread of false information.

## 2.2 Threat assessment process

Regarding threat assessment, either **centralised** or **distributed** assessment routines are in operation in various countries. Centralised routines stem from Prime Ministers' offices or centralised agencies responsible for collecting input and delivering a unified threat assessment. As threat assessments are subjective, centralised systems must be closely scrutinised in terms of which actors control the threat assessment process (Eriksson, 2001). The epistemological backgrounds of threat assessors matter. When civilian actors (such as civil defence or interior ministries) lead the threat assessment process, a broader range of threats, including natural disasters, is usually considered. In contrast, threat assessments by military agencies (and ministries of defence) tend to see threat environments more in military terms.

The country studies revealed that in most cases, very similar principles and standardized procedures are followed when assessing various kinds of risks that can lead to an emergency. This also applies to templates used for analysing the continuity of vital services. The assessment procedures are commonly regulated in Estonia, Finland, Norway, Belgium, Italy, and Hungary. The risk assessment protocol is commonly fulfilled by expert assessments and involvement of relevant institutions, largely based on qualitative data. Quantitative assessment methods are used to calculate the probabilities and potential impacts of natural hazards. Depending on a threat, be it from a foreign or internal aggressor, natural disasters, or others, agencies may use different assessment methods and engage different expertise.

Threats can be categorised as **intentional or unintentional, known or unknown.** Table 1 summarises the threat perceptions across the dimensions of intentionality and familiarity. In most countries (Estonia, Finland, Sweden, Norway, Belgium, Italy), the threats are attributed to both intention and accident, some threats can be both – intentional threat is aggravated by unintentional circumstances. Documents and interviews in Estonia and Finland reveal that the threats assessed in emergency and in continuity risk assessments of vital services are attributed to both intention and accident.

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*Table 1 Threat perceptions across the dimensions of intentionality and familiarity*

| | **Intentional** | **Unintentional** | **Both intentional and unintentional** |
|---|---|---|---|
| **Known** | Terrorism (BEL, ITA, GER, NOR)<br>School shootings (SWE)<br>Use of military force (FIN, SWE)<br>Digital attack and information operations (FIN, SWE, EST, GER) | Chemical, nuclear accident (BEL, NOR, FIN)<br>Natural disasters, weather-related (SWE, FIN, GER),<br>Earthquakes (ITA)<br>Pandemic (NOR)<br>Vital service interruption (SWE) | Fire (EST),<br>Explosion (EST)<br>Lack of resources for the operation of vital services (EST, FIN) |
| **Unknown** | Violent attacks (EST, FIN)<br>Biological threats (FIN) | Collapsing buildings (BEL)<br>Gas explosion (BEL)<br>Natural disasters (BEL) | Hybrid threats including vital services interruption (EST) |

Interviews in Estonia, Finland indicate that the complexity and hybridity of threats were estimated to increase. An admitted lack of knowledge applies to the threats to critical infrastructures. In particular, the cascading and cumulating effects of the disruption of one critical infrastructures and the consequences these may have on the functioning (or interruption) of other are considered "not fully known". Whereas the interruption of critical infrastructures is considered a complex and largely unknown threat in Estonia, Swedish documents emphasise the breakdown in critical infrastructures as something that needs to be prepared for as a generic threat.

Common to all the studied countries, disasters and major crises are considered inevitable. As expected, there are no lists of unknown threats brought out in official documents. In most cases, natural phenomena such as floods and storms are considered known threats while unknown threats (difficult to predict) are accidents and violent attacks. However, interviews indicate variances in the degree of uncertainty attributed to the same threats by representatives from different countries. For example, whereas natural disasters are considered known in Finland, they are considered unknown in Belgium. Whereas the risks related to the digitalisation of society and the threats associated with cyberattacks are mentioned in risk analyses in Northern European countries, these are not present in Hungary, Italy and Belgium.

## 2.3 Structures of resilience/crisis management

We turn now to the second set of questions related to resilience/crisis management structures. We asked: ***What is the general structure of crisis management in your country?*** and posed follow-up questions regarding organisational specifics: centralisation, hierarchies, decision-makers. Resilience/crisis management systems are defined broadly as the national institutions, structures and policies assigned to protect against threats to the security of people and the functioning of critical infrastructures.

Most Western governments experienced pressure in the form of 'New Public Management' (NPM) in the 1980s to reform, centralise, and become more resource-lean (Hood, Rothstein, & Baldwin, 2001). This affected the ways in which resilience/crisis management institutions were reformed and shaped. Today, two models of crisis management appear to be predominant. One is the **lead agency** model, which essentially means centralisation of the responsibility has consolidated under the offices of the Prime

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Minister (or President) (Bossong & Hegemann, 2016). This model is thought to facilitate a decisive response to large-scale disasters, since it limits the number of actors that have a final say over the use of capacities.

The other organisational model for resilience/crisis management is the **network** model which means that capacities and decision-making authority during disasters are distributed across a network. In principle, the network model allows resources to shift quickly where and when required and enables local expertise to be directed to problem-solving at the right level and location. However, the network model relies heavily on coordination and division of responsibilities and can break down in the face of bureaucratic power games (Tierney, 1985).

The countries in our study differ in terms of size and the overall structure of political administration and this is also reflected in their crisis management. Decentralised systems follow the 'subsidiarity' principle that holds that issues should be dealt with at the most immediate level, i.e., a crisis should primarily be handled where it occurs, by those who are closest to it.

In terms of decentralisation, Germany as a large federal country stands out among the countries in our study. The German constitution assigns the tasks of the *Gefahrenabwehr* (law to maintain public order and security) to the single federal states (*Länder*). The federal government is solely responsible for the protection and assistance of those affected by the consequences of armed conflict, while the responsibility for natural and technological disasters remains entirely with the 16 *Länder*. Only when called for, the federal level supports with its resources the *Länder* and municipalities. Districts and independent cities (about 400) play the key role in disaster management on the ground. The *Länder* and the federal level get involved when a disaster exceeds the coping capacities of the local or the regional level. The disaster management system thus rests on the principle of subsidiarity. In the German system, aid organisations (e.g., the Red Cross, Workers' Samaritan Foundation) play a central role. Besides this the subsidiarity principle plays a central role in Germany. In addition to the *Länder* on national level the Federal Office of Civil Protection and Disaster Assistance (BBK) via official assistance (Amtshilfe) offers support for disaster situations to the *Länder*. Though the main operational mandate of the BBK is in cases of civil protection in conflict situation or war time.

At the other end of the spectrum lies Hungary with a markedly centralised structure. The main disaster management authority is the National Directorate General for Disaster Management located within the Ministry of Interior. Disaster management is carried out at national, regional and local levels through the protection committees and local mayors while National Directorate General for Disaster Management coordinates all involved organisations, distributes tasks, and leads all phases in disaster management through the governmental professional bodies. The National Directorate has 20 country directorates, and the operational disaster management structure includes 65 Branch Offices for Disaster Management, 46 Disaster management offices, 65 Disaster management Guards, 105 Professional Fire Departments, 60 local government fire brigades, 72 Industrial Fire Brigades and 564 Volunteer Fire Associations. Important part of the crisis management in Hungary are the professional rescue teams with specialised equipment, called HUNOR (Hungarian National Organisation for Rescue Services) and HUSZÁR (Hungarian National Integrated Organisation for Rescue Services).

In the other countries studied, crisis management is rather decentralised but some form of central coordination has been institutionalised. In Estonia, while ministries and other authorities organise crisis management in their respective areas, the Ministry of the Interior has a central coordinating function. It develops the national crisis management policy and plans its implementation, provides counsel to authorities and guides their activities in the organisation of crisis management. In Finland, the Ministry of the Interior Department for Rescue Services directs and supervises rescue services and maintains oversight of their coverage and quality, and is in charge of the preparedness and organisation of rescue

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services at national level. In Sweden, no single agency or ministries is responsible for crisis management, but national coordination is increasingly done through the Swedish Civil Contingencies Agency (MSB) which works on prevention, preparation, and recovery, and supports the ministries when they respond to emergencies. In Norway, the Ministry of Justice and Public Security has a coordinating role, while the Crisis Support Unit (the permanent secretariat for government's Crisis Council) provides advice and technical assistance to the ministry and manages the Civil Situation Centre, a permanent point of contact for information during extraordinary events and crises. In Belgium, emergency planning and response is done at the communal, provincial, and federal levels but the Crisis Centre under the Federal Public Service Interior is responsible for national emergency planning (e.g., identification and mapping of risks, organising emergency exercises) and running a 'Contact Centre' for informing the population in emergency situations. In Italy, the Civil Protection Department centrally coordinates the civil protection system, defines the general criteria for emergency planning and addresses them to the Regions, which give indications for the preparation of provincial and municipal plans (while Provinces and Municipalities prepare the plans according to the risks of their territory).

In most countries, decision-making processes vary depending on the magnitude of the crisis, and various forms of vertical or horizontal coordination may be initiated accordingly. For instance, in Belgium, crisis response is coordinated by the mayor when the size of the emergency situation requires its management at the municipal level, by the governor when the direct consequences of the emergency situation exceed the territory of the municipality. The Minister of the Interior interferes on the national level when, for instance, two or more provinces or the national territory are concerned, or when the means to be used exceed the means available to a provincial governor in the context of his coordination mission. In Germany, as well, the management level depends on the scope of the event and might be escalated from the municipal level up to the level of the federal state. The authority in charge might change in case of emergent events.

In Finland, the lines of authority may change during the incident, as the operations are supported by local, regional and national cooperation forums, which meet as necessary to support the management of the incident. The ministerial committee, meetings of Permanent Secretaries, meetings of the Heads of Preparedness, and other permanent inter-ministerial cooperation bodies may participate in the preparations to manage incidents. The role of the Prime Minister is highlighted during major national incidents.

In Estonia, the crisis management committee of the government coordinates the crisis management tasks of central government bodies; four regional crisis management committees coordinate the regional structural units of central government and of local authorities; and crisis management committees of local authorities coordinate crisis management within municipalities. Moreover, in case of emergencies caused by the interruption of a vital service (e.g., electricity, water), responsibilities are divided between the provider of a vital service and the authority responsible for organising the continuity of a vital service (Emergency Act, § 37-41). In Germany, the federal government (Föderal Ministry of the Interior (BMI) and the Federal Office of Civil Protection and Disaster Assistance) may need to support the *Länder* in, for example, casualty management, interagency coordination and cooperation at European level (Civil Protection Mechanism).

## 2.4 Resilience

In this section we look at whether 'resilience' is considered a priority goal in the national systems and to what extent this is backed up by resources. 'Resilience' has been treated in literature as a promise for improved crisis management (Boin, Comfort, & Demchak, 2010) but also as a possibly 'false promise' that

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may compromise the effectiveness of crisis management (Rhinard, 2017). In our study, we asked: ***Is 'resilience' considered a goal in a particular country? What resources are devoted to resilience related to the respective tasks of prevention, preparedness, response and recovery?***

Table 3 summarises the findings of our country studies on

- *where* resilience is mentioned, e.g. in central government sources, such as a strategy papers, or in agency reports, thus suggesting how governments see resilience and how it should be implemented;
- (b) in *what* policy areas does resilience feature (e.g. in energy, transport, military) or perhaps more generically (e.g. as a national strategy); and
- (c) how it is discussed (e.g. as a part of prevention, or as a part of response).

This latter question links to an old debate between resilience and robustness (Wildavsky, 1988) that still rages today: should society's life-giving systems be built to be 'robust', thereby fortified to repel all threats, or to be 'resilient', e.g. agile and flexible to be able to withstand breakdowns by, for instance, rerouting functions when inevitably one breaks down? Each strategy involves a very different kind of public investment – and mindset – regarding how to protect critical infrastructures.

Society's resilience is considered a goal in all studied countries. However, documents in different countries elaborate on it to a varying degree. The specific understanding of resilience is quite diverse among different actors in crisis management. Resilience might refer to adaptability, preparedness as well as to resistance of critical infrastructure, the population as a whole, segments of the population or the ability of disaster relief structures. **The concept is rarely addressed in policy documents in Hungary, seldom in Estonia, Belgium and Italy.**

**More comprehensive definitions are in operation in Finland**: "Society's resilience is defined as crisis tolerance" (The Security Committee, 2017, p. 8); "Resilience is a general ability to adapt to disturbances and crisis situations despite their nature" (Hyvönen et al., 2019). Explicit definitions are also in use in **Norwegian** documents: Resilience is seen as the ability to regain normal capacity when the function has been hit by an incident (Forsvarsdepartementet, 2017); "a function's ability to fast regain normal function if a function is influenced by an incident" (NOU 2016).

In Sweden, the concept of resilience appears in a number of governmental policy goals and gains increasing political attention. **In Sweden, but as also in Finland and Estonia, the term is increasingly operationalised in terms of total defence** and militarised issues, while other threats, such as related to the internal security and climate change have lost attention. In Estonia, the concept is explicitly elaborated in the context of cyber-security and particularly focusing on the resilience of digital infrastructures.

In many of the studied countries (Germany, Estonia, Belgium, Estonia, Italy), however, resilience is primarily defined through **the self-help capacity of the population**. Whereas in these countries, the responsibility of the state and of professional structures in disasters is still important, the authorities invest into provision of public information on threats and the ways in which individual households can be prepared. According to Italian Civil Protection Code (The Government of Italy, 2018), awareness is defined as "every activity aimed at the dissemination of knowledge and culture of civil protection in order to encourage the adoption of aware behaviours and self-protection measures by citizens, useful to reduce the risks".

From document analysis and interviews in Germany, Estonia, Finland, Belgium and Italy, an emerging aspect of resilience-building is the psycho-social support in the recovery phase after the crises or disaster.

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*Table 2 The policy context and enactment of resilience-building*

| | **Is 'resilience' mentioned in policies?** | **In what policy areas does resilience feature?** | **How is resilience enacted?** | **What resources are devoted to building resilience?** |
|---|---|---|---|---|
| **Estonia** | Limited mention in crisis regulation. Explicit in documents on cyber-security | Civilian crisis management planning. Technological resilience to hybrid threats | Institutional capacity-building to ensure cyber-security. Information for preparedness, response and recovery | Spending at municipal, regional and national level. Resources by individual households |
| **Finland** | Concept is part of the comprehensive security management | Preparedness to natural phenomena; security of critical infrastructures | Preparedness: strengthening social/health care, trust-building, stimulating media literacy | Spending at municipal, regional and national level. Increasing contribution from private care providers |
| **Sweden** | Concept is part of various government policies; esp. in managing military crises | Civilian crisis management planning. Esp. preparedness to military threats | Military capacity-building<br><br>Prevention and preparedness | Spending at municipal, regional and national level |
| **Norway** | Concept is briefly mentioned in recent documents dealing with crisis regulation | Preparedness for all types of unwanted incidents | Societal security, cooperation for safety and security, protection of vital services, building robust communities | Spending at municipal, regional and national level |
| **Germany** | Limited mention in crisis regulation | Self-help capacity of the population, vital services | Preparedness on side of the population as well as creating redundancies in disaster relief structures | Resources by individual households, Spending at municipal, regional and national level |
| **Belgium** | Limited mention in crisis regulation | Information and resources that allow a return to normal life | Information for preparedness, response and recovery, focus on psycho-social help | Spending at municipal, regional and national level; increasing resources by individual households |
| **Italy** | Civil Protection Code | Aware behaviours, self-protection measures | Thematic information provision and civil protection inspections of households | Civil Protection, including volunteers in prevention and preparedness |
| **Hungary** | Limited mention in crisis regulation | Ability to protect and stand against a disaster | Information for preparedness, response and recovery | Spending at municipal, regional and national level |

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**What resources are devoted to resilience?**

In several countries (Sweden, Estonia, Norway, Hungary), **resilience spending is not separated from normal 'prevention' and 'preparation' spending activities**. For example, in Norway, the Norwegian Directorate for Civil Protection (DSB), and in Estonia, the Estonian Rescue Board, are specialised institutions tasked with preparing for and/or preventing crises. Yet in the rest of the resilience-building activities, the organization responsible for a threat area in a normal situation (health, food, electricity, roads) is also responsible for resources necessary for emergency preparedness and response.

As for the division of responsibilities between actors and resources involved in resilience-building, **the variety of actors involved with their resources differs to a large degree from country to country.** The document analysis and interviews indicate that in some countries like **Germany, Belgium, and Estonia, the state institution's involvement is primarily focused on informing citizens**, whereas individuals and households have the responsibility to prepare themselves so they can withstand and recover from crises.

**In Italy,** next to individuals/households, **the state actors' prevention and preparedness activities are supported by the volunteer involvement**. In addition to information campaigns, professionals are also available to citizens to make free inspections and evaluate how safe are individual private homes in earthquake-prone areas.

The largest variety of actors involved in resilience-building is **in Finland**. There, beyond state institutions representing particular threat areas, actors include health and social care business operators that are playing an increasingly important role in the preparedness process as well as in recovery. In the response and recovery phases, community support, families, close relatives, sports associations and other organisations, as well as the home municipalities are involved. Furthermore, voluntary activities are extensively used and strengthen resilience (The Security Committee, 2017, p. 92). Whereas the **health care and medical fields are considered as part of the resilience building (recovery phase) in Finland,** this is not so in most of the studied countries.

## 2.5 Discussion

With regard to threat perceptions and definitions, a wide variety of risks is prioritised in the studied countries. The threat perceptions are mainly context-specific, depending on the climatic and morphological conditions, geo-political position as well as the societal challenges of a country. But we do see a tendency, not surprising in today's geo-political environment, of re-incorporating known, antagonistic, and military threats after years of downplaying such threats, especially in Northern Europe. Cyber threats are increasingly at focus in these countries.

We find quite a bit of diversity amongst crisis/resilience management structures, although most fall within the centralized versus decentralized categories. The literature on crisis management (see e.g. Bossong & Hegemann, 2016) identifies relative advantages and disadvantages to each design. Regarding threat assessment *processes*, countries display different collections of actors involved in threat assessment. We can suggest that a balanced array of different kinds of actors may be a way towards threat assessment that does not a priori highlight certain threats and risks. In terms of policy making, coordination of resilience-related issues at the European level deserves further consideration.

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Resilience must be treated carefully, since countries define it differently, implement it differently, and fund related efforts in different ways (if at all). Resilience appears predominantly as a demand from the state to the population. While information is generally granted, the scrutiny of the scope of necessary abilities to be more resilient, as well as the open deliberation of how resilient is resilient enough, takes hardly place. In this vein, it might be worth to deliberate in how far resilience is to be fostered rather than imposed (Krüger, 2019).

Combined with our finding on vulnerability, we might argue that "self-help" version of resilience, present in roughly half the countries surveyed, may exacerbate vulnerabilities by reinforcing social inequality. While the resilience of critical infrastructures (including the disaster relief structures) is mainly discussed in terms of materiality and redundancies, the information-centred campaigns of societal resilience often reflect what is referred to as "responsibilisation" – a shift of responsibility to the local sphere (Kaufmann, 2013). By contrast, state-sponsored resilience activities, whereby authorities focus on making society as a whole resilient through dedicated funding, may prove more equitable and effective in the long run.

# 3. Addressing vulnerabilities

Throughout the history of disaster research, the referent object of vulnerability has been highly contested. This reaches from objects described as vulnerable, such as geographical locations (e.g. villages, city quarters, rural areas) or infrastructure (e.g. buildings, industry) to subjects, such as organisations (e.g. administrations, relief organisations, social support organisations) and individuals (e.g. elderly, persons with disabilities, minorities), to vulnerable situations which make objects or subjects vulnerable (living situations, situations of distress). This is important since the way in which vulnerability is addressed depends on who or what is perceived as vulnerable (Anonymous, 2006; Birkmann, 2008; Felgentreff et al., 2012; McEntire, 2005; Wisner et al., 2004). Therefore, we asked in our analyses: ***How is 'vulnerability' defined in formal policy documents and which institutions are tasked with resilience/crisis management?***

The analysis indicated that although there has been an increasing recognition of the individual as an important actor of security in several countries (e.g. Finland, Sweden, Belgium, Germany), overall the **discussions on individual vulnerabilities have remained limited.** National crisis management systems have mainly been focused on the vulnerability of critical infrastructure rather than on individual vulnerabilities in crises.

While the term 'vulnerability' is occasionally mentioned in national policy documents on resilience, civil protection and crisis management, **alternative notions and ways of interpretation are preferred** in some countries. In Italy, individual or group vulnerabilities are generally described in terms of 'social fragility' or 'special needs' of a person or persons who, despite being assisted by civil protection, is/ are not self-sufficient (Italian case study). Here 'disabled' or with 'specific needs' indicate both people afflicted with chronic diseases and disabilities who require specific socio-health assistance, already in everyday situation (Italian Civil Protection Department, 2019). In Hungary, vulnerability as a term does not generally appear in legal or policy documents on disaster management and rather the term 'disadvantaged group(s)' is frequently used denoting people who are unable to protect themselves against grievance due to their disability, age, health-condition, or social status (Hungarian case study).

**A more quantified, and natural-hazards (earthquakes) centred definitions of vulnerability** in relation to risk is in operation by the Italian Department of Civil Protection, where it follows the formula: *Risk = P* (*probability*) * *V* (*vulnerability*)* *E* (*exposure*). *P* states for the probability that a phenomenon will occur with a certain intensity in a given period of time and that it will hit a defined area; *V* is the vulnerability of people,

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economic activities, buildings and infrastructures in general, and is defined as the “propensity to suffer damage following the occurrence of events of a certain intensity”; and *E* stands for exposure, identifying the value of the elements at risk present in the affected area, both in terms of human lives and in terms of settlements (Italian Civil Protection Department, 2018). In a similar way, the German Federal Office of Civil Protection and Disaster Assistance (2013, p. 18, 2014a, p. 13; 2014b, p. 20) has considered vulnerability as comprising of the interplay of three components: *exposure*, *susceptibility* and *coping capacity*. In this, exposure describes the physical exposure to a (natural) hazard; susceptibility the likelihood to suffer harm due to a (natural) hazard event; and coping capacity as the availability of resources and capabilities to minimise the negative effects of (natural) hazards.

**The relative and situational nature of vulnerability** is highlighted by the Swedish Civil Contingencies Agency (2011, p. 8), which is based on a study on natural disasters and demonstrates that all approaches to the concept of vulnerability must take into consideration the complexities of local contexts. As the study shows, differences in geographical locations and social contexts create a different understanding of vulnerability. Hence, it remains difficult – if not impossible – to establish a universal or even a national definition of ‘vulnerability’ (Ibid). The Estonian Civil Protection Concept defines individual vulnerability in rather general terms as "a combination of different factors, which determine the extent of the threat to one's life and well-being at the time of different crises" (Estonian Government Office, 2018 p. 65).

Some definitions of individual vulnerability (Sweden, Estonia) also highlight different phases of crisis regulation and management: prevention, preparedness, response, and recovery. For example, according to the Swedish Civil Contingencies Agency (2011, p. 79), “it is the consequences that an actor or society – despite capacity – fails to anticipate, manage, resist and recover from a crisis that indicates the degree of vulnerability”.

Sometimes, dissimilar conceptual approaches to vulnerability can also be found from the same field or by the same authority. For example, the German Committee for Disaster Reduction has defined vulnerability as future susceptibility (to extreme weather events) and suggested that vulnerabilities should be countered with effective prevention policies (Tetzlaff et al, 2007, p. 67). The German Federal Environmental Agency, meanwhile, has approached vulnerability as the capacity to adapt to a changing environment (Umweltbundesamt, 2015, p. 53).

In conclusion, in national crisis management systems the discussions on individual vulnerabilities have remained limited, whereas the vulnerability of critical infrastructure has been in the focus in vulnerability debates. Differences appear not only between countries but also between different authorities and sectors within a country. Countries like Sweden, Norway and Finland tend to have a more nuanced and contextual understanding of vulnerability whereas Italy has a quantified (or at least calculated) reading of vulnerability that implies a general understanding of vulnerability. Germany and Belgium use aspects of the more contextualized as well as the quantifiable definitions of vulnerability.

## 3.1 Is it possible to reduce vulnerability?

The question of whether being vulnerable is a static or a dynamic status (Adger, 2006, p. 270) is one of the core aspects of defining the aim of disaster management activities. Vulnerability is often cast as a characteristic attribute of certain societal groups due to their conditions (Tierney 2019, p. 127); these persons are seen as ontologically susceptible. Especially for those living in poverty, this essentialist description holds true and allows authorities to develop group specific measures to be taken and to prepare on a more general level (Ibid).

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In contrast to the essentialist understanding of vulnerability, there is an existentialist point of view: vulnerability as a situational and relative, thus dynamic, phenomenon (Hilhorst & Bankoff 2004, p. 2–3). This understanding encompasses three aspects: exposure (interplay of circumstances and individual conditions), diversity of social groups (e.g., the capacities differ among elderly) and the interplay of different disadvantages. In this vein, whether e.g. a person with disabilities is vulnerable depends on the specific crisis situation but also on existing social structures and the extent to which those empower these persons (Gabel, 2019; Mechanic & Tanner, 2007; UN ISDR, 2015; Wisner et al., 2004). In our analyses, we explored ***whether vulnerability is considered something that could be reduced?***

Country studies (e.g. Italy, Estonia, Hungary, and Germany) indicate that on the operational level of crisis management systems, vulnerability is mainly related to an individual's limited or inadequate **self-sufficiency** in crisis situations, which results in a higher need for external assistance. Next to the individual preparedness, **communal preparedness** is also assumed to reduce one's vulnerability. Individuals who have, either independently or in cooperation with their communities, completed necessary preparations for crisis situations, are seen as considerably less vulnerable (Estonian Government Office and Ministry of the Interior, 2018, p. 30; cf. Centrum för totalförsvar och samhällets säkerhet, 2019).

Authorities in several countries (Finland, Sweden, Norway, and Belgium) have started to acknowledge that individuals' capabilities to influence vulnerability are not for the individual to choose, but rather his ability to cope with crises is very much dependent on the **structural as well as situational conditions that shape the opportunities to prepare and protect oneself**. In a study on Swedish public actors' views on the role of individuals in crises, factors such as an individual's age and place of residence were considered to influence the extent to which individuals are capable of coping (Asp, 2015). For example, while elderly people were supposed to have more knowledge on how to manage during a power outage, residents in sparsely populated areas were considered to be better equipped for self-sufficiency, whereas single-family households in cities were seen as more exposed to threats due to less contacts with their neighbours.

Most country studies indicate that the prevailing understanding in the crisis management institutions is that individuals can decrease their vulnerability with adequate preparation. Yet, many groups are considered less capable of preparing and are dependent on the surrounding structures. Furthermore, depending on a type of crisis, preparedness may not be possible even by the people that are better off in normal conditions.

## 3.2 Elements of vulnerability

To reduce vulnerability, it is important to define what the elements that comprise vulnerability are. In line with the UN-ISDR (2004), meta-, macro- and micro-level factors can be distinguished.

- Meta-level factors are root factors of societal vulnerabilities, which refer to the fundamental societal challenges such as the distribution of wealth and power (Hartman & Squires, 2006).
- Macro-level factors refer to the degree of society-specific dynamic pressures, such as the given economic development, demographic change, immigration, inequalities (Christie et al., 2016).
- Micro-level factors describe the specific policy and procedural situation of dealing with crisis in a given society, such as economic/planning/housing, accessibility or the use of media, but also the disaster management strategies in dealing with vulnerable groups (Kailes & Enders, 2007).

To explore the extent to which the above elements of vulnerability are prominent in national documents and interpretations by actors in crisis management, we asked: ***Does vulnerability differ according to the respective threat type? If so, what constitutes as a vulnerability for what kind of threat****?*

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In a number of instances (e.g. Germany, Finland), (individual) 'vulnerabilities' or 'vulnerable groups' are only mentioned in national policy documents without specifying who in particular belongs to these groups or what makes certain individuals or groups vulnerable and in which situations. Yet, based on our country analyses, we could still identify a variety of examples of individuals or groups characterised as 'vulnerable' to certain hazards or in crises in general. The examples of vulnerable individuals and groups together with the aspects that are seen constitutive of their vulnerabilities, as well as the specific contexts of threats and crises in which they are mainly described as vulnerable are summarised in the table below (see Table 3).

*Table 3 An overview of aspects seen as constitutive of individual and group vulnerabilities*

| **Aspects constitutive of vulnerabilities** | **Examples of vulnerable individuals and groups** | **Examples of contexts (hazards and crisis situations)** |
|---|---|---|
| **Limited mental and physical capacities, limited mobility** | Elderly; infants and children; disabled; people with (chronic) illnesses, physical or mental impairments or specific health conditions (e.g. people with dementia, pregnant women) | Climate-related and natural hazards (e.g. heatwaves); crisis situations that require evacuation and relocation of people; disruptions of vital services (e.g. pharmaceutical supply) |
| **Language abilities/ skills** | People having limited access to (public) information either due to their limited mental capacities or poor/ lack of knowledge of national language(s) (e.g. different migrant groups, refugees, asylum seekers, tourists), illiterates | Crisis situations that precede public warnings; (transport) accidents or crisis situations which involve a large number of foreigners and non-residents |
| **Social capital and networks** | People living alone and/or without personal social networks, inhabitants of isolated areas with no access to their social network | Crisis situations that require evacuation and relocation of people |
| **Socio-economic status** | People living in poverty or at poverty-risk; recipients of social benefits (e.g. unemployed); socio-economically marginalised people (e.g. homeless) | Crisis situations that require evacuation and relocation of people; disruptions of financial services |
| **Institutionalised setting** | People living or placed in different institutional settings (e.g. welfare and social care facilities, assisted living facilities, hospitals, shelters, prisons etc.); schoolchildren | Crisis situations that require evacuation and relocation of people; on-site accidents (e.g. fires) and attacks (e.g. school shootings); disruptions of vital services (electricity, heating, water, pharmaceutical supply) |
| **Type and conditions of dwelling** | People living at top-floor (e.g. in the case of heatwaves) or basement-floor apartments (e.g. in the case of floods); people living in apartment-buildings depending on central provision of vital services | Climate-related and natural hazards (e.g. Heatwaves, floods, storms); disruptions of vital services (electricity, heating, water supply, sewerage) |
| **Residential area or geographic region** | People living in urban areas; people living in dispersed and isolated settlements and/ or at a distance from professional rescue services; people living in the area of hazardous facilities or areas affected by natural hazards | Climate-related and natural hazards (e.g. heatwaves, floods, storms, volcanic eruptions, earthquakes); industrial accidents (e.g. explosions, fires); attacks; disruptions of vital services |

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The overview demonstrates that certain individuals or groups who are generally seen as vulnerable to different kinds of threats and crises. These include mainly elderly, children, ill and disabled people whose vulnerability is caused by individual or group characteristics but can also be deepened by certain situational factors. Individual vulnerabilities primarily explained by situational or contextual factors, on the other hand, are threat-specific rather than universal. As the examples also indicate, the aspects or factors that are seen constitutive of individual vulnerabilities often tend to intersect in the case of certain individuals and groups.

Typically, individual physical and mental capacities, language skills and media use behaviours, but also individual social networks are considered as **elements of vulnerability, which are related to the individual own capacities, rather than the availability of policies, procedures and structures to support the functioning in crises**. The micro- and macro-level elements of vulnerability become more prominent when the **geographic and infrastructural surroundings** of an individual or community are stressed (e.g. hazard prone areas; disruptions of vital services, where alternatives are not available). I**nstitutionalised settings** in which certain individuals or groups, who may already have limited or reduced physical and mental capacities, are placed (e.g. care facilities for the elderly, people with disabilities) imply further dependency on the environment and its capacity to secure the safety of people.

The case studies of actual crises in the countries have pointed out the following groups identified as 'vulnerable' in that specific crisis (see Table 4). Compared to the overview given above, an additional aspect that can affect individual vulnerability in crisis concerns a large number of people affected while being 'on the move' and depending on transport infrastructure (e.g. being stuck on a road in a snowstorm).

As individual vulnerabilities are generally considered in relation to specific hazards and risk scenarios, the threats that appear to be most acute or probable in particular society, region or municipality also determine which kinds of individual vulnerabilities become acknowledged (or, on the contrary, overlooked) in that crisis management system. This selection bias (historical path-dependency), is evident in case of cyber threats, which are otherwise paid increasing attention in many of the countries analysed here (Norway, Sweden, Estonia, Finland). The cyber threat vulnerabilities have been considered in technological, infrastructural or organisational terms, while individual vulnerabilities – related, for example, to individuals' overall 'cyber literacy' or their personal 'cyber hygiene' – have largely been ignored or dismissed so far (Estonian case study). In other words, the range of individual vulnerabilities recognised in a society is also dependent on the variety of threats recognised by that society or context. Therefore, the consideration of individual vulnerabilities tends to be context-specific and thus selective.

Another problematic aspect that has been brought out in the reflections by the interviewed people, is the *a priori* identification and acknowledgement of certain individuals or groups as 'vulnerable' in crises, which may lead to stigmatisation and victimisation in society (Interviews at Swedish Civil Contingencies Agency, 10.12.2019; Brussels-Prevention & Security, 09.12.2019). As the interviewed experts, especially in the field of psycho-social crisis support urged, the assessment and identification of individual vulnerabilities should be individual-based rather than group-based (Interviews at Brussels-Prevention & Security, 09.12.2019; Estonian Ministry of Social Affairs, 28.11.2019).

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*Table 4 Individuals and groups identified as 'vulnerable' in case studies of crises in Europe*

| Case study | Vulnerable groups |
|---|---|
| **Extensive electricity disruption** in Estonia, October 2019 | In general: people affected by electricity disruption<br>In particular: children as more susceptible to impacts; people in care facilities and hospitals |
| **Water contamination** in Nousiainen, Finland, in 2017 | In general: residents of the municipality affected by the incident<br>In particular: children and people with illnesses as more susceptible to impacts; elderly and marginalised people not reached through crisis communication; households without transport to access water supply points |
| **Migration crisis** in Sweden, in 2015 | In general: asylum seekers involved<br>In particular: unaccompanied minors |
| **Terrorist attacks** in Oslo and at Utøya island, Norway, in 2011 | In general: people situated in the immediate vicinity of the attacks; affected youth at Utøya being in a psychologically vulnerable age<br>In particular: youth with physical disabilities and/or unable to swim to escape |
| **Floods** in Saxony and surrounding areas in Germany, in 2013 | In general: residents of affected areas<br>In particular: people with poor knowledge of German, care home inhabitants, hearing impaired not reached by crisis communication, evacuated people |
| **Terrorist attacks** in Brussels airport and metro stations, Belgium, in 2016 | In general: those present at the airport and metro stations<br>In particular: non-residents of Belgium without local social networks; individuals with special medical needs |
| L'Aquila **earthquake** in Italy, in 2009 | In general: residents of the city of L'Aquila that was affected by the earthquake<br>In particular: elderly, persons with mobility impairments, evacuated people |
| **Toxic red sludge spill** in Hungary, in 2010<br>**Severe snowstorms** in March 2013 | Residents of the villages mostly affected by the flood, of whom some belonged to low-income groups as well as to minority groups (e.g. Roma)<br>In particular: people being stuck on the roads due to snowstorms; people living in settlements isolated by the snow |

## 3.3 Whose task is it to reduce vulnerability?

Disasters not only produce vulnerabilities but worsen those which already exists in everyday life. Thus, the social structures people are living in are of utmost importance for disaster management purposes (International Federation of Red Cross and Red Crescent Societies, 2007, p. 11; Kelman & Stough, 2015, p. 8; Sparf, 2016, p. 2). This on the other hand would make the reduction of vulnerability a task for non-disaster management actors, for instance care service, social services, disabled persons' institutions, counselling, homeless assistance, and so forth. Taking a closer look at this cooperation between security and civil actors regarding vulnerability reduction might allow for an identification of gaps to support those, especially vulnerable (Mechanic & Tanner, 2007; Wisner et al, 2004). In our analyses, we aimed to take this notion further, by asking: ***How is responding to the vulnerability of an individual or a group***

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***organised by institutions tasked with resilience/crisis management? If and how is the community support to vulnerable people encouraged?***

None of the countries analysed within the BuildERS project has a specific crisis management authority or civil protection agency whose **formal obligation is to respond to the needs of vulnerable individuals or groups.** Instead, authorities and actors from different sectors and levels of crisis management (national, regional, municipal) generally deal with vulnerable individuals and groups as part of their overall responsibilities related to civil protection and/ or crisis management. However, their professional competences and preparedness for that usually vary. In general, municipalities and local (social and welfare) authorities appear to be mainly responsible for responding to the needs of vulnerable individuals and groups, although in most countries also third-sector organisations such as the Red Cross and volunteer associations have a crucial role in working with vulnerable individuals and groups.

**At the national level, the government departments and central authorities responsible for crisis management and/or civil protection generally draft policy guidelines and regulations** which, however, may just occasionally address individual vulnerabilities, conduct assessments as well as plan and organise risk and crisis communication. They also run projects focusing on vulnerable groups, often in cooperation with non-governmental and voluntary organisations, and provide counselling and thematic trainings. For example, the Finnish National Rescue Association offers everyday safety for vulnerable groups, especially the elderly and people with memory disorders and migrants. The association organises trainings, conducts research on vulnerabilities as well as builds networks with other authorities and research communities (Interview at Finnish National Rescue Association, 9.1.2020). In Sweden, the Civil Contingencies Agency has a similar profile and role in the national crisis management system. It has recently carried out a pilot project in cooperation with a non-profit organisation (Fryshuset Foundation), municipalities and youth centres, to offer young people training on handling multiple types of vulnerabilities, including being socially excluded, in times of crisis (Interview at Swedish Civil Contingencies Agency, 11.12.2019).

**At the local level, municipalities and local (social welfare) authorities are generally expected to have information and knowledge about vulnerable individuals and groups among their residents as well as to provide primary emergency assistance to them in crises**. However, the extent to which municipalities' respective obligations and tasks are regulated is quite varied between different countries. While in some countries (e.g. Sweden, Norway) municipalities are obliged to analyse and consider individual vulnerabilities as part of their risk assessments and/ or emergency plans, in other countries this is in early stages (e.g. Germany) or missing (e.g. Estonia).

While rescue and **emergency services mainly assist vulnerable individuals or groups in an emergency area during a crisis**, they can also be involved in crises prevention and preparedness on local level by helping to identify as well as to advise vulnerable individuals and groups. For instance, the rescue workers and volunteers of Estonian Regional Rescue Centres advise individuals also on crises preparedness as part of their home counselling on fire safety, which is targeted at, but also aims to identify vulnerable households (Interview at Estonian Rescue Board, 16.11.2019).

In most countries, **third-sector organisations** such as national Red Cross (e.g. Finland, Norway, Belgium, Germany, Italy, Hungary), voluntary organisations working with certain vulnerable groups (e.g. homeless or disabled people) or associations specialised on providing certain type of assistance (e.g. psychological help) also have a crucial role in assisting vulnerable individuals and groups in crisis situations. In Belgium, for instance, the Red Cross deals the first 48 hours of a crisis. It also mobilised its resources in response to the terrorist attacks in Brussels airport Zaventem and Maalbeek metro station in March 2016 (Belgian case study). In the case of L'Aquila earthquake in Italy in 2009, the Red Cross likewise provided healthcare as well as psychosocial assistance to the affected population, focusing particularly on minors and elderly

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(Italian Red Cross, 2010). In Finland, the church is actively involved in assisting vulnerable people in crises, especially with psycho-social help (Finnish case study).

**Can citizens help each other?**

As individual or communal preparedness for crises is seen to reduce individual vulnerabilities, at least to some extent or at least in some cases, national governments and authorities also try to find ways to encourage their citizens' acknowledgement and assistance of other community members' vulnerabilities to various hazards and crises.

For instance, public guidelines proposed for crisis preparedness and appropriate behaviour in crises can remind people to pay attention to and, if possible, help those in need in crises. Noticing vulnerable individuals and groups in their community while preparing for different crisis or when in crisis is encouraged in the Estonian Code of Conduct for Crisis Situations (Estonian Ministry of the Interior and Government Office, 2018); in Finnish "72h Home Preparedness: Useful Tips for Disruptions and Emergencies" (Finnish National Rescue Association, 2019) and in the German Guide for Emergency Preparedness and Correct Action in Emergency Situations (German Federal Office for Citizen Protection and Disaster Assistance, 2018). These kind of reminders, however, often remain rather general without referring to specific examples of individual vulnerabilities nor giving primary instructions how to assist such individuals in one's neighbourhood or community in the case of a hazard or a crisis.

In some countries, municipalities have an active role in advising people on how to prepare for crisis situations and recognise those who would need special assistance in such situations. For example, as part of the guidance on crisis preparedness published on municipal web pages, Oslo Municipality in Norway also requests people to think more specifically about persons with impaired vision, hearing or mobility in their neighbourhood or community, as well as about persons who do not understand Norwegian or English and may thus need a helping hand in a crisis situation (Oslo kommune, 2020).

Besides, educational activities give guidance on how to secure one's safety and contribute to general acknowledgement of individual vulnerabilities in society. Such activities may include special courses on safety issues targeted to school pupils and students, first aid trainings etc. For example, in Finland a national rescue and fire safety skill campaign "NouHätä!" (Suomen Pelastusalan Keskusjärjestö, 2020) targeted to secondary school students improves ability to anticipate hazardous situations and reaches approximately 40,000 young people each year.

In addition to government and public sector initiatives, voluntary organisations can also significantly contribute to citizens' awareness and acknowledgment of individual and group vulnerabilities, as the findings from different countries (e.g. Finland, Belgium, Italy) suggest. In Belgium, for example, the national Red Cross has volunteering programmes where people can volunteer to visit isolated elderly people in their homes or at asylum centres (Belgian case study). In Germany in recent years the Ministry of Interior in cooperation with third sector organisations pushed first aid and safety courses that encompass self-protection as well as acknowledge the needs of certain social groups (e.g. children, care givers, refugees) (German Federal Office of Civil Protection and Disaster Assistance, 2019).

The abovementioned efforts, however, cannot substitute for institutional responsibilities to recognise and respond to the needs of vulnerable individuals and groups in the context of crisis management.

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## 3.4 Ways of alleviating vulnerability in crises

National policies and regulations on crisis management generally do not include specific requirements or tasks concerning how (national) authorities should deal with vulnerable individuals or groups in the context of prevention, preparedness, response and recovery. In some cases, policies or regulations on crisis management or civil protection just include general principles, which oblige respective authorities to consider certain individual aspects or needs in their actions, without necessarily specifying how these aspects or needs ought to be taken into account. Measures for alleviating the strain caused by crises or disasters primarily include the assessment of vulnerability and the crisis communication adapted to specific groups.

Finland is one of the only countries, where rescue services responsible for assisting individuals in accidents and crises have their own organisational and procedural guidelines on how to deal with vulnerable individuals and groups. The Finnish National Rescue Association, for example, has prepared trainings and materials focusing on specific vulnerable groups such as ethno-cultural minorities (Finnish National Rescue Association, 2020). Rescue services are also prepared to assist certain vulnerable groups such as the elderly in care institutions and people with disabilities (Interviews at Finnish Rescue Service, South-West area 3.12.2019; Rescue Service, South-East area, 8.1.2020).

In most cases, the regulations and guidelines on how to assess and respond to individual vulnerabilities in crisis situations apply to municipalities and local authorities that are mainly responsible for dealing with vulnerable individuals and groups. For example, in Norway, the regulation concerning municipal emergency preparedness includes references to vulnerable groups (Direktoratet for samfunnssikkerhet og beredskap, 2018). A guide on psychosocial actions in crises, accidents and disasters states that Norwegian municipalities must ensure the same quality of care for different cultural groups. The guide also draws attention to children and youth, and asylum seekers and refugees as examples of vulnerable groups (Helsedirektoratet, 2016).

In Hungary, the emergency plans conducted by municipalities or workplaces ought to specify conditions for ‘disadvantaged groups’ but there is no central guideline on how to do that (Hungarian case study). The regulation (234/2011 of the Ministry of Interior, Hungary) specifies the threats to be considered as well as the content and structure of the emergency plans but not how these groups should be handled in principle. In the case of migration related risks, the placement and tending of refugees needs to be included in the emergency plan (Ibid).

In Belgium, emergency planning at the communal and provincial level must take into account "communities, businesses, institutions and individuals who, because of their location or activity, are particularly vulnerable to the damaging consequences of an emergency situation." (Belgian Federal Public Service, 2019).

In Estonia, no such guidelines exist at the time of writing. However, the Estonian Civil Protection Concept assigns a task to the Ministry of Social Affairs to draft recommended guidelines for municipalities on how to assess the number of people living within their territories who have higher needs for assistance in crisis situations (Estonian Government Office and the Ministry of the Interior, 2018). This also involves providing local specialists dealing with such individuals and groups with appropriate means and equipment (e.g. batteries, mobile phones, emergency buttons etc.) needed in such situations (Ibid).

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**Assessment of individual vulnerabilities**

One increasingly used approach to reducing vulnerabilities is the assessment of vulnerability. That is expected to provide a basis for the allocation of resources for preparedness, response and recovery. In our country studies we asked*: **Have there been any assessments of vulnerability of individuals and their resilience in different crises situations?***

Regarding the evidence of individual vulnerabilities, which is being collected and analysed in the selected national crisis management systems, we found different types of assessments and surveys that vary in their purpose, thematic scope and focus as well as in methodological approaches.

There are assessments conducted in advance, for better preparedness, but also during and after the crises.

***Ex ante* analyses** conducted by the national authorities aim to identify social groups that may be vulnerable to certain hazards or possible crisis situations in the society. The aim of such assessment is **to support risk preparedness and adaptation to changes at different levels of government and in different sectors**. These are often part of national risk assessments and thus relate to national crisis planning and governance. While some of these assessments have been conducted on an *ad hoc* basis, others are of more regular nature.

The Swedish Civil Contingencies Agency has conducted assessments and research on different societal risks, which also point out social groups who are primarily affected by certain risk scenarios (see, e.g., Swedish Civil Contingencies Agency, 2013, 2014, 2016). In accordance with the Ordinance on Emergency Management and Increased Preparedness (Sveriges Riksdag, 2006, p. 942), **Swedish government agencies are also required to conduct annual risk and vulnerability analyses**, which primarily concern accidents involving dangerous substances, extreme weather conditions, and disruptions in technical infrastructure. A group that is being frequently identified as vulnerable with regard to various risks (e.g. natural hazards such as heatwaves and floods; disruptions of vital services such as water supply; antibiotic resistance etc.) is the elderly, especially those living alone or in care facilities (Ibid). Similarly, in **Norway**, several national analyses of high risk and/ or vulnerable groups regarding accidents (including fires, traffic and home accidents) have been conducted over the years (Haldorsen & Munch-Olsen, 2011; Norwegian Government Official Report, 2012; Norwegian Directorate for Civil Protection, 16.12.2019).

**In Finland, a national assessment of weather and climate risks** was carried out in 2017-2018, focusing on the preparedness and adaptation to climate change at different levels of government and in different sectors (Tuomenvirta et al., 2018). Hydro-meteorological and climatic risks were assessed as a combination of the hazard (hydro-meteorological phenomenon), exposure (location of the asset or people at risk) and vulnerability (features of the asset or people at risk). According to the findings of the assessment, elderly people appear to be particularly suffering from warm weather, including icy and slippery roads when ice is melting due to warm weather (Ibid).

In a few of the studied countries**, municipalities carry out assessments to identify vulnerable individuals** or groups among their residents or within their territory, so that these individuals and groups can be adequately approached and assisted in the case of an emergency. These assessments can likewise be part of municipality risk assessments and/ or their prevention and emergency plans. In Sweden, municipalities and county councils have the obligation to conduct risk and vulnerability analyses according to the Act on Municipal and County Council Measures Prior to and During Extraordinary Events (2006: 544). A recent vulnerability analysis conducted by Örebro Municipality in Sweden, for example, has identified the elderly, chronically ill and disabled people, children and pregnant women as the most vulnerable to heatwaves (Örebro Kommune, 2019, p. 40).

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In Norway, many municipalities likewise include analysis of impacts of different scenarios on vulnerable individuals and groups in their risk assessments (Interviews at the Government of Oslo og Viken 13.12.19; The Norwegian Directorate for Civil Protection 16.12.19). The respective analysis conducted by Norwegian municipalities have identified the following groups as vulnerable: people depending on home care in the case of extreme weather events that hinder mobility; high school students in the case of school shootings; tourists who are in lack of local network/ resources (Ibid).

In Germany, the Federal Office of Civil Protection and Disaster Assistance (BBK) has published guidelines for assessing individual vulnerability to heat waves, heavy rainfalls and floods at a community level (German Federal Office of Civil Protection and Disaster Assistance, 2014a; 2014b). However, **it is not known how these guidelines have been employed in analyses**. Besides this, a general database on vulnerable persons does not exist for reasons such as German data protection standards. Nonetheless certain data exists with e.g. service providers or insurances; though cooperation in crisis is highly situative.

In Italy, vulnerability assessments regarding specific crisis situations have not been conducted. In crisis situation, the Civil Protection Department collaborates with the local municipality to identify the specific *ad hoc* vulnerability also by using the SVEI (*Scheda per la Valutazione delle Esigenze Immediate*) form for the evaluation of immediate needs (e.g., disabled people, the elderly, mothers with children) (Interview at Italian Civil Protection Department, 29.11.2019).

The **local rescue services have a crucial role in ex ante type of analysis identifying and assessing individual vulnerabilities to certain hazards and crisis situations on local level**. For instance, in Estonia, the Regional Rescue Centres identify individuals and households who can be vulnerable in crisis situations as part of their home counselling on fire safety carried out by rescue workers and volunteers. To identify homes-at-risk and vulnerable households, Regional Rescue Centres cooperate with local social workers as well as use various administrative data at their disposal (Interview at Estonian Rescue Board, 06.11.2019).

Another example of analyses conducted in advance, is the surveys on individual preparedness for crises, which allow also to identify which population groups are better or worse prepared for different crisis situations as well as to analyse how risk perceptions vary between different social groups in the society. For example, the surveys commissioned by the Estonian Rescue Board have shown that the Russian-speaking population in Estonia has generally higher perceptions of risk but is also less prepared for possible crisis situations (Kantar Emor, 2017, 2019).

Assessments are **conducted during a crisis situation in order to identify vulnerable individuals in an accident site or an emergency** i.e. people who need special assistance and adequate accommodation due to their specific needs related to disability. The only example here is the assessment form developed by the Italian Department of Civil Protection in order to assess and meet the immediate needs of the most fragile individuals already involved in an emergency (Italian case study). The assessment is based on a questionnaire formula that helps to assess the need for specific assistance, including relocation (Italian Civil Protection Department, 2019).

***Ex post*** analyses are carried out **to capture the experiences of residents or groups most affected by an incident or disaster**. For example, the Finnish National Rescue Association (2017a) conducted a survey among the local residents of the City of Pori after a fire at titanium dioxide manufacturing facility in 2017. In Italy, a study concerned the living conditions of the families of the City of L'Aquila affected by the earthquake of 2009 (Italian Red Cross, 2010). In Hungary, a social impact analysis was conducted after the red sludge disaster in the south-western part of the country in 2010 (Ferencz & Bartal, 2015), indicating the increased tensions between roma and other inhabitants compared to the relations before the disaster (Ibid).

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The above indicates that assessments are most often in advance of crisis situations and as part of risk assessment and crisis preparedness. The national analyses bring out several critiques of the vulnerability assessments. According to the Swedish Civil Contingencies Agency (2010, p. 28), there is little understanding about how vulnerable groups may be identified and how their position might be considered within emergency prevention projects. It is also unclear what the implications of pointing out vulnerable groups are (Ibid).

Concerns have been raised that the vulnerability assessments conducted by municipalities may be missing, partial, irregular or outdated (German Red Cross, 2018). Collecting and getting adequate information on individual vulnerabilities usually requires coordinated efforts between different local authorities, services and sectors, which, however, may not always succeed or take place at all. For example, municipalities are expected to have information on where the people who need specific assistance in crisis are, they may not have or be able to provide adequate data in this respect. Further, criticisms concern the limited availability of practical guidelines on how to use the vulnerability assessment and implement specific measures to deal with the vulnerable individuals.

**Risk and crisis communication addressing vulnerabilities**

Risk and **crisis communication appears to be a sub-field of crisis management in which individual vulnerabilities and individuals' special needs tend to be particularly addressed in several countries.**

In Hungary, the regulation 62/2011 issued by the Ministry of the Interior on the rules related to disaster management mentions that 'disadvantaged groups' should be informed about the eventual crisis appropriately by applying the tailored materials and guidance (Hungarian Ministry of the Interior, 2011a). A regulation by the Estonian Government (no 112, § 9, 3) on the management of an emergency stipulates that the publics must be informed in the ways and in languages which guarantee the delivery of the information to the people affected by the concrete emergency (Estonian Government, 2017). In some countries like Norway, the same principles are already included in national communication policy and equally applied in the field of crisis management (Fornyings- og administrasjonsdepartementet, 2009). As for practical implementation, Oslo Municipality, for instance, has translated its guidelines on households' preparedness for crisis situations to several languages and has shared these translations with other Norwegian municipalities (Interview at County Government of Oslo and Viken, 13.12.2019).

The interviewed experts in crisis management also pointed out deficiencies in informing vulnerable individuals or groups about hazards and emergencies. In the case of emergencies, it can be difficult to reach foreigners and certain migrant groups who do not have enough knowledge of the national language(s) or English, or who do not use national or local information channels (Interviews at Save the Children, 09.12.2019; Brussels Prevention and Security, 09.12.2019). The needs of migrant groups as well as foreigners involved in emergencies are increasingly being addressed in the context of crisis management in several countries (e.g. Finland, Sweden, Norway, Germany, Belgium). In the same way, risk and/or crisis communication may not be adjusted to the needs of other vulnerable groups like disabled people. In Sweden, the national crisis guidelines distributed by the Swedish Civil Contingencies Agency in 2018 received critical feedback from disabled people because these were not adapted to them (Interview at the Swedish Civil Contingencies Agency, 10.12.2019). During the emergency caused by extensive floods in Germany in 2002, the deficiencies of a loudspeaker-based warning-systems became apparent, as people with hearing impairments failed to have timely and adequate information (Bachmann, 2013; German Red Cross, 2018).

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## 3.5 Discussion

Our analysis revealed two somewhat contradictory tendencies that characterise national approaches to individual vulnerabilities. On the one hand, national authorities tend to have a rather comprehensive approach to individual vulnerabilities, as demonstrated by the treatments of (individual) vulnerability in policy documents which point to different dimensions constitutive of (individual) vulnerability. On the other hand, in practice, national approaches to individual vulnerabilities appear to be rather selective as well as varied between different authorities, organisations and sectors, depending on which threats are mainly in focus and what are the responsibilities and tasks of the respective authorities in crisis management.

Countries like Sweden, Norway and Finland tend to have a more nuanced and contextual understanding of vulnerability whereas Italy has a quantified (or at least calculated) reading of vulnerability that implies a general understanding of vulnerability. Belgium use aspects of the more contextualized as well as the quantifiable definitions of vulnerability. The study did not identify individual or group level vulnerability assessments for crisis contexts in Germany, Hungary nor Estonia, where pre-determined vulnerable groups are primarily considered as vulnerable in crisis contexts.

In general, individual vulnerabilities are considered and discussed in relation to certain threats and risk scenarios. Typically, the elderly, children, people with disabilities or illnesses are described and acknowledged as vulnerable groups. Besides, the special needs of different migrant and non-resident groups are increasingly and regularly recognised in the context of crisis management in most of the countries. All factors should be understood as interdependent and interrelated. Therefore, the existence of one factor does not necessarily lead to vulnerability. While ascribing vulnerability to some people might serve as a useful and legitimate heuristic during a relief operation, dynamic understandings of vulnerability should guide policies to reduce vulnerability, since this approach puts the contingency (thus the making rather than the being of vulnerability) upfront.

As our findings also indicate, there is a lack of comprehensive, conceptual and methodological framework for systematically identifying, assessing, and responding to individual vulnerabilities in the context of crisis management. None of the countries included in our study had detailed policy guidelines or strategies related to crisis planning and management which specifically focused on responding to the needs of vulnerable individuals and groups in crises. In general, limited research has been carried out amongst vulnerable individuals and groups, including on their risk-perceptions, crisis preparedness and behaviour, and personal recovery strategies. Hence, a differentiated approach to crisis management/civil protection measures, which would acknowledge social and cultural diversity in the society and systematically take into consideration differences in individuals' capacities and circumstances to prepare and respond to various hazards, is only being developed in most of the countries that we have analysed here. Risk and crisis communication appear to be the sub-fields of crisis management, together with evacuation measures and psychosocial support, where individual vulnerabilities and individuals' special needs are frequently mentioned, although not necessarily taken fully into account.

A large share of the efforts to respond to the needs of vulnerable individuals and groups in the context of crisis management is made at a local level by municipalities or by non-governmental actors. This means that the respective approaches and practices are rather diverse and vary not only between but also within countries. While municipalities and local authorities are seen to be mainly responsible for responding to the needs of vulnerable individuals and groups, they are usually provided only with limited guidance on how to successfully fulfil that responsibility.

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# 4. The role of social support networks and volunteers in resilience/disaster management

In addition to formal and/or volunteer organisations, residents' engagement and social support can provide resources and skills for better resilience/crisis management. Over the past 20 years, the involvement of subnational non-profit/charity actors or even citizens in crisis responses has grown (Fugate, 2013). In some countries, resilience/crisis management authorities encourage individual citizens, private companies, and local communities to build social support networks and self-preparedness ahead of risks/threats to reduce potential disruptions, dislocations, and/or damages (Caruson & MacManus, 2006; Col, 2007). In this section, we explore the role of official and unofficial volunteers and support networks in the cycle of crisis management. First, we introduce some background information on the availability of social support networks and the level of engagement in voluntary activities in European countries. We then turn to the study findings from BuildERS country analyses.

Emotional and material support is crucial in responding to crises. According to the EU-SILC 2015 study, such support is not universally available in all European countries. Figure 1 indicates the share of people who state that help is not accessible to them in times of need. Particularly Balkan, Benelux and Baltic countries stand out with relatively more people stating that they have no one to rely on in times of need. Among BuildERS countries, the share of people that claim to lack this support reaches up to 13% in Italy. This share is somewhat lower in Estonia (7%) and Belgium (8%); considerably lower (2-3%) in Hungary, Germany, Finland, Sweden, and Norway.

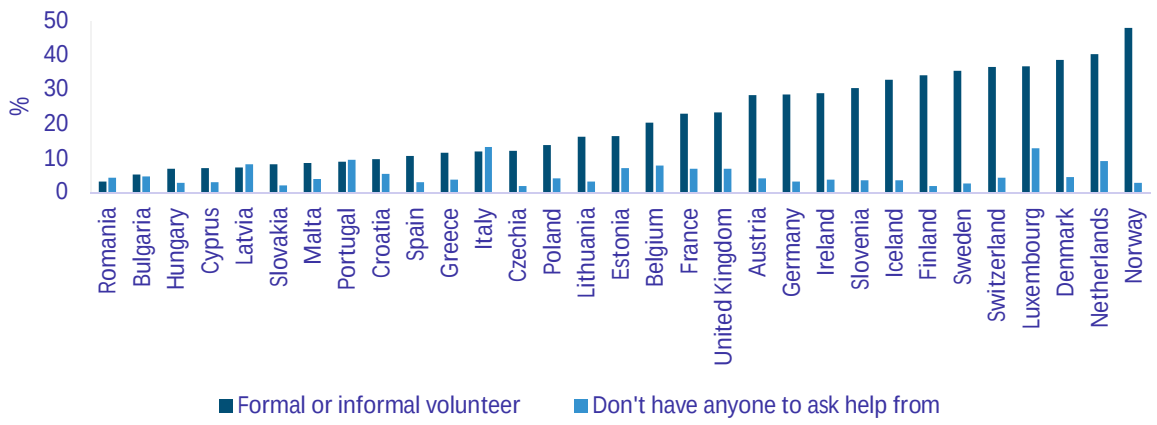


Figure 1 **Persons who do not have someone to ask for help**. Participation in formal or informal voluntary activities or active citizenship (*Data Source: EU SILC 2015; authors' calculations).*

Volunteers can offer support in meeting societal needs and goals, where the state institutions do not reach. The share of individuals who act as formal or informal volunteers varies considerably in European countries. Figure 1 demonstrates that, among the BuildERS countries, the lowest share of individuals engaged in voluntary activities is in Hungary with 7% of the individuals being volunteers in more or less formal ways. A modest share of people is engaged in Estonia and Belgium, 16% and 20% respectively. In Nordic countries, the rate of voluntary engagement is considerably higher ranging from 30% in Germany, 34% in Finland and 35% in Sweden to 48% in Norway.

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In the context of crisis management, the share of volunteers contributing to the activities on risk prevention, crisis response and recovery activities is crucial. The European Public Service Union lists the number of firefighters, professionals, voluntary, and other (including military, seasonal, industrial, airports, nuclear plants, docks, state and private) in several countries (European Public Service Union, 2010). As for BuildERS countries, the ratio of voluntary firefighters varied considerably in 2010. In Finland, more than 84% of the firefighters were voluntary, in Belgium, 76%. The ratio in Italy was much lower: Only 21% of the firefighters were voluntary. The lowest ratio of voluntary firefighters was in Estonia, where only 6% were voluntary in 2010.

In the following, we will focus on the information gathered from desk research and interviews on the role of volunteerism and social support networks in crisis management.

## 4.1 Volunteerism and social support networks

More frequent disasters and economic pressures have increased the involvement of organised or 'affiliated' volunteers in 'formal' crisis response (Fugate, 2013). Moreover, as organisational attachments are weakening (Cnaan & Handy, 2005; Dunn, Chambers, & Hyde, 2015; Hustinx, 2005; Macduff, 2005), new forms of informal and self-organised volunteering are gaining importance. Whereas affiliated volunteers' work is more formally incorporated to the official crisis management, informal volunteers may participate as individuals or as part of a group, on a short or longer-term basis, regularly or irregularly, *in situ* or *ex situ*; and their participation may be spontaneous and unplanned, or deliberate and carefully planned (Whittaker et al., 2015). To map out the situation in BuildERS partner countries, we were interested in ***how is volunteerism defined by their institutions tasked with resilience/crisis management?***

In all countries, volunteers are mentioned in crisis management related policy and/or regulatory documents. However, in most of the countries, there is no official definition of volunteerism in the context of crisis management. In Hungary, according to the Hungarian Országos Katasztrófavédelmi Főigazgatóság (2020), "a volunteer is a person who from his own will, against his free time helps other people and for that joins a voluntarily formed civil group to save human lives and material resources". In Germany, based on the definition of the Federal Office of Civil Protection and Disaster Assistance (BBK, 2019), volunteering is "an obligation that is done voluntarily and unpaid in one of those organisations that are active in civil protection." In addition, in other countries volunteerism is understood as helping others in their free will and time, and not getting ordinary pay for it. However, in some countries, doing voluntary work in organisations or groups (e.g., in Hungary) and requirement of professional skills or previous training (Belgium, Hungary, Italy, Germany) is more emphasised.

### Social support networks

According to Harris et al. (2017), 'informal' forms of volunteering occur in local communities, for example between family, friends, neighbours, and associational members. In this case, volunteering can be considered as an expression of self-help behaviour of local individuals and communities, and community involvement and civil engagement (Forbes & Zampelli, 2014). It has become more common that crisis management authorities encourage individual citizens, private companies, and local communities to build social support networks and self-preparedness ahead of threats to reduce potential disruptions, dislocations or damages (Caruson & MacManus, 2006; Col, 2007). Communities understand their own contexts and realities the best. Therefore, 'official' responders are dependent for their effectiveness on the local knowledge, contacts and self-organising capacities, which local community network can contribute

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(Harris et al., 2017). In our analysis of country cases we were interested in the following: T***o what extent is the building of social support networks a part of national crisis planning in selected European countries?***

**In almost all countries, building of social support networks is a part of national crisis planning to a small extent at most.** For example, in Sweden it is a small part of national crisis planning and remains fairly undeveloped. However, Finland and Hungary may be exceptions. According to the Finnish case study, social support networks are a part of national crisis planning, meaning mainly NGOs, church and their volunteers. In Hungary, social support networks are a part of the national disaster management system for preparedness/prevention and recovery (Hungarian case study).

'Social support networks' are not conceptually supported by formal disaster management policy documents in most of the countries. Only in the Finnish Security Strategy for Society 2017, this term is used in relation to psychological resilience and volunteering. In addition, the Estonian Civil Protection Concept (2018) uses the term 'community networks', a conceptually closely related term, to denote the building and empowerment of social networks for better coping. As the representative of the Village Movement in Estonia put it (14.11.2019), community networks' role is interpreted throughout the crisis cycle:

- in prevention phase, as community members' awareness of different risks and needs (including mapping them) in their area;
- in preparation – knowing neighbours and key persons in the community (having contact information), agreeing on how they can help each other in the crisis situation, including discussions on who possess what skills/equipment;
- in response as information exchange from door-to-door (in case other channels are not usable), helping other community members, also collectively;
- in recovery – community members individually or collectively contributing to building back better.

**In recent years in all countries, national activities concerning raising awareness and self-help capacities have been carried out, yet these mainly do not address the role of building social support networks.** Mainly, guidelines are prepared that offer advice concerning individual preparedness measures and adequate behaviour during crises, such as "Disasters alarm" in Germany (BBK, 2017), "If crisis or war comes" in Sweden (Committee on Defence, 2015), "72h" in Finland (n.d.), "I do not risk" in Italy. In general, these campaigns are aimed at building individual, household, and community resilience. However, the role of the citizen is generally reduced to this of the individual, able to perform self-help in order to bridge to time until professional disaster relief can take over. As one of the exceptions, Estonian preparedness guidelines (Government Office & Ministry of the Interior, 2018) advise on how to prepare for a crisis together with the neighbours and community, e.g. get acquainted with your neighbours and exchange phone numbers; find out who the key crisis management persons are in your community and with them determine the dangers in your region and the impact of disruptions to vital services, and consider how to be better prepared for them together.

In Belgium, people are advised to involve neighbours or vulnerable people to their own emergency plan, including discussing with them how they can contact each other in case of need (Belgian case study; https://www.info-risques.be/fr/ensemble). In Norway, there is a long tradition that neighbours help one another if something happens and the Norwegian Rescue Service is founded on this tradition (Nasjonalt Redningsfaglig Råd, 2018). In Germany the Federal Office of Civil Protection and Disaster Assistance advises to get in contact with neighbours or the community to get support in case of a disaster (BBK 2018). The German disaster management system remains rather state-centric (Joseph, 2018), several German interviewees emphasised the importance of neighbourhood assistance for disaster management.

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According to a Post-doctoral researcher from the Swedish Defence University (interview in 20.12.2019), it is **the social networks that exist outside the context of a crisis that will be critical during an actual crisis**. Maintaining and using these social networks are also key to crisis preparedness (The Security Committee, 2017:88). Also, a representative of the Swedish Red Cross (Interview in 22.01.2020) emphasised that there must be organisations that exist in the community to organise volunteers in the event of a disruption or crisis. It could be an association, such as a football association, or the Red Cross, for example.

Voluntary organizations provide community education to increase preparedness in some countries like Estonia, Norway, and Sweden. For example, in Norway, "Sammen redder vi liv" is a collaboration project between the Ministry of Health and Care Services and a number of voluntary organizations and foundations, where the goal is to increase the community's readiness for cardiac arrest, stroke, heart attack and other serious injuries that are time-critical (Helsedirektoratet, 2017; Nasjonal kompetansetjeneste for prehospital akuttmedisin, 2020). However, at least in Estonia and Sweden, community preparedness trainings are not systematic and frequent yet (Interview at South-Estonian Rescue Centre in 28.11.2019; Swedish case study).

**In some countries, local authorities have encouraged or initiated the establishment of local social support networks.** In Estonia, Alliance of Harju County Local Governments (AHCLG) organized "Preparedness Days" in June-September 2019 for building of local cooperation networks in 15 municipalities in the Harju county (Estonian case study). On this one-day event, the "Code of conduct for crisis situations" was introduced to local key persons, crisis communication procedure in the case of snow storm was introduced, and an agreement was made to distribute the code of conduct in the local communities (Interview at AHCLG in 19.11.2019). Representative of AHCLG sees the event as a first 'more systematic' step in the process of forming social support networks in their municipalities (Ibid.).

In many municipalities of Sweden, a support group for psychological and social care ('POSOM') exists that can be activated in the event of a crisis or trauma (CTSS, 2019:125). Such groups are set up differently depending on how the municipality has organised them, but commonly include local actors such as the social services, the school, voluntary organisations and religious associations (ibid). In the emergency phase, the crisis groups support individuals and families, set up information and support centres and collaborate with relevant organisations (Socialstyrelsen, 2018:50). The centres are often alerted directly through SOS Alarm or through municipal emergency services (ibid).

In Hungary, local civil protection teams are part of the local social support network, having members who are assigned by the mayor but can consist also volunteers. Their definition, training, and specific tasks and obligations are stipulated in the Law on disaster management (2011).

Although there are national and local 'social support network' activities, there is **no systematic – at least not top-down – approach to building social support networks in any of the countries we studied.**

### 'Unaffiliated' or spontaneous volunteers[1] and their collaboration with formal responders

Unaffiliated volunteerism is a form of volunteering in which citizens arrive at a scene of sudden needs, caused by a crisis, in an unplanned, spontaneous, and *ad hoc* mode to help disaster relief (Simsa et al., 2019). Spontaneous volunteers can be both needed and, simultaneously, not wanted by disaster managers - a phenomenon called '*involvement/exclusion paradox of spontaneous volunteering*' (Harris et

[1] Here, we use the terms 'unaffiliated' and 'spontaneous' volunteers interchangeably. Using only 'spontaneous' may indicate that this kind of volunteering occurs only in response stage of crisis management.

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al., 2017). Reactions by 'official' responders to spontaneous volunteers tend to be cautious, as they are seen as outsiders, whose qualifications, skills, background, and capacity are unknown and whose credentials cannot be reliably verified (Drabek & McEntire, 2003; Harris et al., 2017). In consequence, ordinary citizens and emergent groups are often underutilized or even rejected during emergencies; moreover, emergency planners and plans rarely take emergent groups and spontaneous volunteering into account (Twigg & Mosel, 2017). Managers deterring people from spontaneous helping can ultimately have a negative effect (Harris et al., 2017) and especially the early incorporation of local networks in formal response mechanisms, improves disaster response (Reimer et al., 2013). In this report we explore how the crisis management systems find the balance in purposeful engagement of spontaneous volunteers by asking: ***What are the regulations for engaging community members and volunteers into crisis management? What are the methods and tools for civic involvement in crisis management?***

**In the European countries studied here, the engagement of unaffiliated or spontaneous volunteers is not regulated and it is on ad hoc basis.** Only in the case of Norway, spontaneous volunteers have short-term contracts to contribute in firefighting (Norwegian case study), and in the case of Germany, German Red Cross has developed brochures to train their staff to deal with unaffiliated volunteers (German case study). Still, there are quite recent examples of their involvement in all countries, showing that spontaneous volunteers play an increasingly important role in disaster response and recovery. For example, in Germany: unaffiliated volunteers organised via social media have played an increasingly important role since the latest floods in 2013 (Albris 2017, 2018). In Table 5, different functions are described that unaffiliated volunteers have fulfilled in the crisis management in specific case studies in BuildERS countries.

*Table 5 Self-organising in case studies of crises in Europe*

| **Case study** | **Functions of unaffiliated volunteers** |
|---|---|
| Extensive electricity and communication system's disruptions, Estonia 2019 | Provided the pop-up soup kitchen in Mooste parish (Mõttus, 2019). |
| Water contamination in Nousiainen in Finland, 2017-18 | People shared information via social media and kept each other updated. |
| Migration crisis in Sweden, 2015 | Volunteers arrived at central stations and ferry terminals before government agencies had a chance to organise themselves at these sites to offer information to migrants. |
| Terrorist attacks in Oslo and at Utøya Island in Norway, 2011 | Contributed to rescue in both places, e.g. provided first aid in Oslo and picked up youth swimming from the Utøya Island. |
| Floods in Saxony and surrounding areas in Germany, 2013 | Contributed to filling sandbags, building sandbag installations, provided shuttle services, material for recovery or food for volunteers |
| Terrorist attacks in Brussels airport and metro stations in Belgium, 2016 | Used the hashtag #ikwiihelpen on social media to offer temporary housing and transportation to those stranded by the bombings. |
| L'Aquila earthquake in Italy, 2009 | In a recovery stage, created a self-built ecovillage (EcoVillaggio Autocostruito). |
| Toxic red sludge disaster in Hungary, 2010<br>Severe winter weather and snowstorms in Hungary, March 2013 | In toxic red sludge case, helped to bring damaged items (fixtures, furniture) out to the streets, clean up the mud from the gardens.<br>In case of snowstorms, provided warm food and drinks for the ones stuck in the snow. Collection was organised through Facebook. Also offering four-wheel drive vehicles, shelters for whole families. |

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Country studies brought out different understandings about the use of volunteer contributions in crises. In addition to perceiving **unaffiliated volunteering as a resource** (Interview at County Government of Oslo and Viken in 13.12.2019; FORF, 2020), in many countries 'official' responders also consider the emergent structures of **unaffiliated volunteering as a challenge** to public disaster management (German case study; interviews at County Government of Oslo and Viken, 13.12.2019; Italian Civil Protection, 17.12.2019; FORF 13.01.2020). The crisis cases with spontaneous volunteers' involvement – Swedish and German ones being the clearest – have pointed to several shortcomings and learning opportunities.

During the Swedish 2015 migrant crisis, when the asylum seekers first arrived, there was limited or no information available in their languages (SOU, 2017:286), causing confusion as to who the volunteers on site were and how the asylum process worked. After a few days of disorder, cooperation was organised among the volunteers as well as with the authorities (SOU, 2017:20). It turned out that **social media was a useful tool in disseminating information and creating coordination among volunteers** (through groups such as "Refugees Welcome" and "We who receive refugees at Stockholm Central"; SOU, 2017:276). The case demonstrated that **increased collaboration between authorities and volunteers are required to optimise use of the resources available** (SOU, 2017:34).

In the case of Swedish wildfires in the summer of 2018 (CTSS 2019:108), coordination of spontaneous volunteers (who primarily arranged food, water and accommodation for the emergency services personnel) eventually became more structured, since spontaneous volunteers had to be coordinated by the Swedish Red Cross and Swedish Civil Contingencies Agency for over a month. The Red Cross received a total of 6120 applications from spontaneous volunteers during this period. Contact lists were distributed at the behest of rescue services and municipalities in five counties. According to a Swedish Red Cross representative (interview in 22.01.2020), initial tensions occurred between volunteers and state institutions during wildfires because of a government decision to give the same compensation to a volunteer who was making sandwiches or providing bedding as a part-time firefighter with six years of training. It suggests that there is a **need to differentiate formal and informal volunteers in state regulations, guidelines.** It has turned out that there are shortcomings in the Swedish authorities' knowledge of which spontaneous/emergent groups exist, how they can help, how to collaborate with them and how to organise it (Swedish case study). However, after the wildfires in the summer of 2018, the state authorities' will to engage with volunteers has become stronger (interview at the Swedish Red Cross, 22.01.2020).

In the case of floods in 2013 in Saxony (German case study), besides the work of educated relief workers of the state associations and relief organisations, citizens organised themselves on a community level along the Danube and Elbe rivers to rescue their own houses or to help others affected by the floods. In the Saxon capital of Dresden alone, 5000 citizens organised themselves via social media such as Facebook and Twitter. Additionally, numerous volunteers from other parts of the city, or from other regions of Germany arrived on site to render assistance. Not only was important information very quickly disseminated, but also false or obsolete information and rumours emerged**.** Consequently, there was often an overflow of volunteers on "sites of deployment". Also, the sandbag installations in many places were instable because they had been built up without the necessary expertise. Thus, it also turned out that the **spontaneous volunteers support the 'formal' responders the best when they have adequately been instructed about the crisis situation and possible auxiliary measures and tasks**. The official report pointed to the need for better communication with self-organised volunteers (Sächsische Staatskanzlei, 2013) as misunderstandings and even conflicts occasionally occurred; the **need to better allocate this help and to better monitor social media information/trends/mobilisation efforts** (Sächsische Staatskanzlei, 2013, German Red Cross, 2016). Experience reports by both spontaneous volunteers and staff of civil protection organisations have shown that *target-oriented coordination* and **steering of both**

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**the requests and offers for assistance** during the disaster response operation would be very helpful (German case study).

First **signs are emerging that the engagement of and cooperation with spontaneous volunteers will become more regulated and institutionalised** in the future. In 2016, a declaration of the board of the German Red Cross expressed its will to elaborate the further collaboration with 'new forms of engagement' beside the traditional trained volunteers (German Red Cross, 2016). Based on that, the largest volunteer group for crisis management within the German Red Cross, the "Disaster Services", described in their latest strategy publication (German Red Cross, 2018) the will to develop a structure for unaffiliated volunteers in addition to the trained volunteers with lower standards of training.

These are commitments to new developments outside of the organizational structure in a way that will not contradict the traditional principals (German Red Cross, 2018) and its motivations. However, this kind of development is probably slower in countries like Belgium or Italy where professional skills or training are required from volunteers. According to a representative of the Urgent Help Service Operations Cell (interview in 15.01.2020) in Belgium, there are no foreseeable options for properly integrating spontaneous volunteers as it is already difficult to organize professionals. Also, Italian disaster management authority, in principle, discourages spontaneity (Italian case study). In Belgium, **the rise of social media has helped spontaneous volunteers to self-organise**, given the lack of space for informal volunteering within organisations working in disaster management (Belgian case study).

**'Affiliated' volunteers**

Affiliated and trained volunteers are perceived as an important part of crisis management system in every country, being also included in formal policy documents. In all countries, affiliated volunteers' engagement is regulated by legislative acts, and in some countries (e.g., Estonia, Finland, Norway, Hungary) there are also cooperation agreements/contracts between authorities/institutions and voluntary organisations. In Germany, volunteer employees play core role in their disaster management (Karutz et al., 2017: 9), as the main part of the 1.7 million members work on a voluntary basis (Karutz et al., 2017: 97). Also, in many countries like **Estonia, Finland, Norway, Belgium, Italy, formal volunteering organisations are included in governmental crisis preparedness plans**.

In general, some types of affiliated volunteers are more engaged, and their engagement is more regulated. In most countries, **the most engaged and regulated volunteers in the crisis management system are voluntary rescuers**. These voluntary rescuers get trainings from their organisations, reimbursement of expenses. Voluntary rescue organisations are an important part of the Norwegian (Norwegian case study; Justis- og beredskapsdepartementet, 2016; Politidirektoratet, 2011), Estonian (Estonian case study), Finnish (Finnish case study), Hungarian (Hungarian case study), German (German case study) rescue service. In Norway, for some special areas of rescue, such as the use of dogs in search and rescue and demanding rescue in caves, volunteers are the experts that are relied upon (Nasjonalt Redningsfaglig Råd, 2018). In almost all countries, the Red Cross is an important volunteer resource. It is not the case in Estonia, however, where state institutions tasked with crisis management consider the Defence League as a major volunteer resource (interview at South-Estonian Rescue Centre in 28.11.2019), especially in cases when the involvement of large crowds is needed.

In Belgium, the Red Cross - managed by the psycho-social manager for the respective region - is the primary organization for volunteers: it is training them and playing a major role in immediate emergency response, thus having a strong relationship with the governmental crisis management authorities (interview at Belgian Red Cross, 16.12.2019). In other countries, there are more voluntary organisations contributing to the disaster management, making the collaboration with volunteers more complicated to authorities.

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According to the representative of Swedish Red Cross (interview in 22.01.2020), for the collaboration to work well, voluntary work must be organised in a way that the authorities understand. As the Red Cross representative (22.01.2020) put it: “Volunteer organisations must organise themselves in the same way, talk in the same way, be in the same arenas, collaboration conferences, platforms, conferences where the authorities are located. Ongoing dialogue is crucial.”

## 4.2 Discussion

Social support networks are central for effective emergency formal and informal response (Baker & Refsgaard, 2007; Jaeger et al, 2007; Munasinghe, 2007). One of the indicators of social support is whether a person has anyone that he can turn to when he needs help. Our analysis of EU-SILC data indicated that the availability of such support is particularly problematic for individuals in some countries like Italy. Relatively large share of people that do not have the support network to rely on when help is needed is characteristic to Estonia and Belgium. Whereas the share of people who claim that they lack this support is considerably lower in Hungary, Germany, Norway, Finland, and Sweden.

Our report indicates that the social networks that exist outside the context of a crisis are critical during an actual crisis. Maintaining and using these social networks is also key to crisis preparedness. This can be highly relevant in remote areas which may be difficult to reach, but also in urban areas, where it is easier to remain anonymous and to be left out (willingly or not) of social networks.

Although there are national and local ‘social support network’ initiatives, there seems to be no systematic approach to building social support networks in any of the countries and it is not an important part of national crisis planning yet (Finland and Hungary as possible exceptions). In the crisis preparedness guidelines issued by the authorities in many of the analysed countries, the role of the citizen is generally reduced to self-preparedness. The idea that individuals could offer support to other people living in their community, particularly those who may lack the capacities to cope on their own, could be included in the preparedness guidelines. Belgium and Estonia provide good examples in this.

The level of volunteering in a particular social context sets preconditions also for voluntary engagement in support and relief-seeking in a crisis. The analyses of EU-SILC data demonstrate that voluntary engagement differs considerably in Europe. While in Hungary (as in many other Eastern European and Balkan countries) voluntary engagement is less prominent, in Estonia and Belgium it reaches up to a fifth of population. In Nordic countries, nearly half of the population is engaged in some kind of volunteering activity.

According to our study, affiliated and trained volunteers are perceived as an important part of crisis management system in every country. In all countries, the engagement of spontaneous volunteers is not generally regulated and it is on *ad hoc* basis. In countries like **Belgium, Hungary, Italy, volunteer engagement in crisis relief is more institutionalised and the requirement of professional skills or previous training is more emphasised.** This helps to ensure that the involved volunteers and official crisis managers share the understanding of the crisis relief procedures. On the downside, the requirements for training and professionalization limits the access of spontaneous volunteers who may provide necessary resources (e.g. local knowledge).

There are shortcomings in the authorities' knowledge of which unaffiliated groups exist, how they can help and how to work with them practically. In accordance to Simsa et al. (2019) and Twigg and Mosel (2017), different disaster cases in selected European countries have shown that informal/spontaneous volunteering can imply significant coordination, integration, communication, logistical, and health and safety challenges or risks to the volunteers, to the clients, or to the disaster organizations. The ‘official’

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responders' drive to manage these risks can help to explain why spontaneous volunteers and emergent groups are often underutilized or even rejected during emergencies. This can be especially the case in countries where volunteers are required to have professional skills (Belgium) or previous training (Hungary, Italy). Spontaneous volunteers support the 'formal' responders the best when they have adequately been instructed. Whereas the volunteers' contribution can be reimbursed, the issues of fairness of paying just compensations for the trained professionals and volunteers may raise.

IT tools allow to register volunteers to be able to task them when needed. Social media have helped unaffiliated/informal volunteers to self-organise and they play an increasingly important role in disaster response and recovery. Such new media tools also help to enhance spontaneous volunteers' involvement and engagement. However, social media can also facilitate a spread of rumours and information that may impede crisis relief. Since spontaneous volunteers are increasingly organised in social media, resources are required to better monitor social media mobilisation efforts.

# 5. Conclusions and recommendations

The aim of this report D2.2 was to elucidate the similarities and differences in interpretations and functioning of the various dimensions of resilience and crisis management across Europe. Based on the documentary analysis and interviews, we sought to develop a more systematic understanding of general patterns of resilience management practices in BuildERS countries: Estonia, Finland, Sweden, Norway, Belgium, Italy and Hungary.

**Perspectives on threats and resilience**

The analysis indicates that with regard to threat perceptions and definitions, a wide variety of risks are prioritised in the studied countries related to their climatic and morphological conditions, geo-political position as well as the societal challenges. However, we see a re-incorporating known, antagonistic, and military threats after years of downplaying such threats, especially in Northern Europe.

Studied countries define resilience differently, implement it differently, and fund related efforts in different ways (if at all). We find quite a bit of diversity amongst crisis/resilience management structures, although most countries fall within the centralized versus decentralized categories. The resilience of critical infrastructures (including the disaster relief structures) is mainly discussed in terms of material preparedness. Societal resilience tends to be mainly fostered through information campaigns that shed the responsibility for preparation on individual, with little scrutiny of the scope of necessary capacities for coping in crisis.

Combined with our finding on vulnerability, we might argue that "self-help" version of resilience, present in roughly half of the countries surveyed, may exacerbate vulnerabilities by reinforcing social inequality. For example, poorer communities are not likely to be more resilient through appeals to be self-reliant. By contrast, state-sponsored resilience activities, whereby authorities focus on making society as a whole resilient through dedicated funding, may prove more equitable and effective in the long run.

Following the above conclusions, **we recommend policy-makers to**

- Foster public debates regarding the extent to which resilience could be expected from the members of public and communities or be granted by the authorities.

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- Give preference to state-sponsored resilience activities over appeals for self-reliance, as the former may prove more equitable and effective in the long run.
- Engage a balanced array of different kinds of actors in threat assessment to ensure that assessment does not a priori highlight certain threats at the expense of downplaying other risks.

**Addressing vulnerabilities**

In the studied countries, individual vulnerability is conceptualised primarily related to the individual capacities: personal readiness and social conditions (poverty). The quality of regulations and the availability of institutional support and information or disaster management procedures are rarely brought up as elements of vulnerability. There is a lack of comprehensive conceptual and methodological framework for assessing individual vulnerabilities in crisis management. Further research is necessary to analyse the practical and ethical implicatons of vulnerability assessments on local and national level.

Except for crisis communication endeavours, there is very little systematic consideration of the social and cultural diversity of the communities and the related specific needs in crisis management efforts. Efforts to respond to the needs of vulnerable individuals are concentrated on the municipal level. Yet they tend to have limited guidance on how to systematically fulfil that responsibility.

**We recommend policy-makers to**

- Consider individual vulnerabilities in regulations and strategies concerning risk assessments, crisis prevention and preparedness, response planning and recovery.
- Approach individual vulnerabilities as dynamic and open, evolving together with the societal threats faced by a community.
- A static ascription of vulnerability to some people (e.g. physically disabled or mentally) can be an advised strategy to give guidance during a relief operation.
- Involve representatives of vulnerable groups in the process of drafting policies for tackling vulnerability in order to render them subjects in the process.
- Explore possibilities to use EU civil protection mechanism to coordinate approaches to handling vulnerable populations.

**We recommend crisis managers to**

- Be careful in ascribing vulnerability to some people as this may cause a risk of homogenising this group according to a single personal characteristic (e.g., age, sex, income) and stigmatising this group as vulnerable.
- Develop methodologies for the (local) authorities to identify who can be most at risk and/ or who may need specific assistance in a crisis situation.
- Build on experience from actual crises as well as scenario analyses in systematic studies of who are most vulnerable in different types of incidents.

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- Facilitate coordination between different local authorities, services and sectors for collecting adequate information on individual vulnerabilities as well as for responding to the needs of vulnerable individuals and groups.
- Establish practical guidelines on how to use the results of the vulnerability assessment and how to deal with the vulnerable individuals, including informing, empowerment and assistance.

**Benefitting from social support networks and volunteers in crisis**

There is no systematic approach to building social support networks as part of national crisis planning. Finland and Hungary as exceptions. The crisis preparedness guidelines targeted at communities tend to emphasise citizen's role to self-preparedness. However, giving support to other people living in the community or outside needs to be more emphasised. Belgium and Estonia present good examples for encouraging community support for building resilience. Further studies could look into the cultural and operational factors that facilitate the development of social support networks in the context of crisis management.

In Belgium, Hungary, Italy, volunteer engagement in crisis relief is more professionalised. Through joint trainings involved volunteers and official crisis managers share the understanding of the crisis relief procedures. However, such semi-professionalised volunteer systems may limit the access of spontaneous volunteers. Authorities' tend to have poor knowledge of how to practically work with volunteer groups. These groups could offer support best when adequately instructed. IT tools could be tailored to better register, task and guide volunteers when needed. In many cases, social media have helped informal volunteers to self-organise. However, it can also facilitate a spread of rumours and impede crisis relief.

**We recommend the policy makers to**

- Elaborate strategies and allocate resources to develop local social support networks' capacity in crisis prevention, preparedness, response and recovery.
- Allocate resources to coordinate the engagement of spontaneous volunteers in crisis management system, including across country borders.

**We advise the 'official' responders to**

- Encourage debates over the role of citizens and volunteers as potential resources to organising crisis preparedness, response and recovery activities.
- Invest means to support the work of community organisations to strengthen social networks that could be relied on in times of crises, e.g. support to community associations.
- Facilitate dialogue between the official crisis managers and the volunteer organisations to enable common understanding of the rules and processes.
- Develop regulations and operational principles for engagement of spontaneous volunteers, i.e. additional liaison officers, system to pre-register, greet and note to avoid immediate rejection.

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- Implement trainings that focus on quick recognition of emergent volunteer capacities, assigning appropriate tasks, quick instructions and target-oriented coordination.
- Make better use of social media and IT tools to engage and collaborate with informal volunteers.
- Allocate resources to be able to monitor social media information and mobilisation efforts to avoid the spread of misinformation.

**We recommend community organisations and networks to**

- Increase the ‘everyday’ quality and quantity of social networks through community events to boost resilience.
- Invest in social support network building in activities and events related to crisis and coping.
- Consider the community emergency plan including collaboration with vulnerable people, and how you can contact each other in case of crisis.

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Finnish National Rescue Association, January 2020

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Oslo and Viken, County Government, December 2019

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