

created through cross-scale relationships between people and organizations and encompasses interactions with information/knowledge and social learning processing.

· A strong connection exists between soft and hard infrastructures: the reliability of physical infrastructures during the emergency management contributed to mobilize the social capital through the social network. Similarly, the resilience of the community conditioned the level of service provided by the infrastructure.

### **Community and social networks**

The restoration of social networks in disaster impacted areas depends on obtaining goods and capitals, and on governmental policies; however, the characteristics of the community in which the business is located, may significantly condition recovery process and related strategies.

Disasters thus cause short- and long-term effects on social structures as well. Establishing causal relationships in social network formation and dynamics is difficult because of the complexity of engineering social relations in a controlled environment. The negative consequences people experience in any disaster are conditioned by their perceptions of risk and their vulnerability, and how these factors influence their ability to make and carry out decisions.

Among the emerging lessons in the immediate and long-term aftermath of disasters is the role that community organizations and community-based networks play in all stages of disaster preparedness and recovery. Community responses demonstrate the importance of local knowledge, resources, and cooperative strategies in determining their survival and recovery. Recovery processes are also closely coupled with preexisting conditions of community and social networks.

## **SECTION 6: TOOLS AND METHODS IN EDUCEN**

### **1. Wiki**

This WIKI intends to provide guidance on analysing, identifying and mapping cultural assets and challenges of culture in urban disaster management. The guide builds on the information collected in the State of the Art report written for the EDUCEN project and aims to set the stage for a practical application of this information in real situations.

Culture is a critical driver of risk perception, vulnerability, and resilience. Yet the multiple roles that culture may play as an asset or obstacle in disaster risk reduction (DRR) have so far not been explored and set out. There is a lack of compelling exemplary stories of culture in DRR in European cities. Most studies that triggered our attention for 'culture' and 'disaster' either (a) provided non European examples (b) described disasters in rural areas (c) focused predominantly on the protection of physical cultural heritage or (d) were to a large extent historical in their content.

EDUCEN aims to investigate the influence of cultural aspects on how different people may perceive a risky situation and act/react according to this perception. EDUCEN understands 'culture' as: The (learned) knowledge, beliefs, values, art, rules and law, customs and norms, and social structure that people use to comprehend and give meaning to the world around them, and which together form the "toolkit" or repertoire of habits, skills, and styles from which people construct "strategies of action".

Important to note here is that individuals are not passive recipients of culture but rather active participants that create and give meaning to culture. People can select certain aspects of culture, whilst rejecting others, to construct "strategies of action".

#### **1.1. Conceptual introduction**

#### **VULNERABILITY**

Vulnerability has been conceptualized in many ways depending on various research disciplines, but it is developed largely in those social sciences addressing environmental risks and hazards (Kasperson & Kasperson 2005). A working definition is provided by Wisner et al who consider vulnerability as "the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard" (Wisner et al. 2003: 11). It involves a combination of factors that determine to what extent people, their livelihood, property, or other assets are put at risk by events, or series of events, in nature and society.

Inherent in the approach is that risks are different for everyone, even if they face the same hazard. Vulnerable populations are those at risk not simple because they are exposed to hazard but because they cannot absorb its impact as a result of marginality. Taking into account people and the differences among them (Bradshaw 2004), vulnerability is a key concept in predicting and understanding the existence of differentiated impacts of a natural disaster on the various groups in a society. Vulnerability however is not a fixed property of social groups or individuals, but is embedded in complex social relations and processes (Hilhorst & Bankoff 2004), and therefore subject to change.

**Guiding questions to be used as a starting point for analysis and data collection**

- What cultural factors/dimensions contribute to the vulnerability to disaster?
- Are there certain groups of people that might be more vulnerable due to their position (age-, gender-, ethnic-, economic-, social- position?) and why?
- Are specific groups in society particularly vulnerable in one or more stages of the disaster cycle (e.g. migrants, refugees, women, retirees, people with an impairment)?
- How are people's perceptions, knowledge, and access to information of influence on their vulnerability?
- To what degree are vulnerable local communities supported to actively participate in risk reduction decision making, policy making, and planning and implementation processes?

## RESILIENCE

Contrary to the concept of vulnerability, resilience starts from people's own capabilities and potential. The word resilience is derived from the Latin word *resilio*, meaning "to jump back" (Klein et al. 2003). The concept of resilience has quickly gained popularity in the field of disaster studies and emergency management as an effective and efficient way to reduce prevailing vulnerabilities and thereby the risk of disaster (Engel et al. 2014). The review of Keck and Sakdapolrak (2013) of literature published on resilience provides insight into a variety of definitions. Keck and Sakdapolrak found that all definitions of resilience have in common that they are concerned with social entities – individuals, organizations, or communities-, and their abilities or capacities to tolerate, absorb, cope with and adjust to various kinds of environmental and social threats. Based on their exploration of the literature, the authors propose to define (social) resilience as being comprised of three dimensions:

1. Coping capacities; the ability of social actors to cope with and overcome all kinds of adversities
2. Adaptive capacities; their ability to learn from past experiences and adjust themselves to future challenges in their everyday lives
3. Transformative capacities; their ability to craft sets of institutions that foster individual welfare and sustainable societal robustness towards future crises

**Guiding questions to be used as a starting point for analysis and data collection**

- What cultural factors/dimensions contribute and / or diminish resilience to disaster in your case?
- Are there certain groups of people that are more resilient to disaster? Why?
- What strategies do people use to increase their resilience? cope and deal with adversities?

- How and what did the community learn from past crises? What adjustments have been made?
- Have proactive adjustments been made to develop increased competence to deal with threats? Have these adjustments been institutionalized?

## RISK PERCEPTION

The EDUCEN project adopts the understanding of risk of Douglas and Wildavsky, valuing risk perception as a socio-cultural phenomenon. Perceptions of risk are embedded in culture. As noted by Douglas and Wildavsky (1982), the cultural belief system determines the collective notions of how the world functions. These collective notions also contain social constructed “images” of the world, including perceptions on what is dangerous and how to cope with risk. Individual aspects of risk perception are influenced by the social community that people live in and vice versa. The cultural context is also interrelated to individual perception as well as to the social system.

This social knowledge is essential for the members of a society to evaluate situations and act in an appropriate manner. Consequently, understanding the ways risks are dealt with requires a thorough understanding of the cultural setting. Inherent in such an understanding is the recognition that these risk perceptions often rely on intuitive risk judgement or beliefs rather than on rational deliberations, and therefore may differ considerably from risk assessments by experts of the same event. As Alexander argues, “decisions about whether to mitigate a natural hazard are often not a function of how dangerous the hazard is in absolute or objective terms but how dangerous it is perceived to be”

### Guiding questions for analysing, identifying and mapping risk perception

- Has there been previous experience with disaster?
- How does this previous experience influence current risk perceptions? (heightened risk perception?)
- What is the expectation of people from public authorities? Do they expect public authorities to take preventive measures? How does this influence their perception on risk?
- What is the influence of people’s social, economic status and gender on their perception of risk?
- What knowledge on disaster in their area do people have? Where does this knowledge come from (science, authorities, beliefs, stories etc)? What is the influence of this knowledge on risk perception and behavior?

## DISASTER SUBCULTURES

Communities living in hazard-ridden or disaster-prone areas develop an array of coping mechanisms as well as more deeply embedded practices to deal with threats and opportunities their environments encompasses. The assemblage of cultural practices that over time emerges in response to recurring disasters has been identified as ‘disaster subcultures’ (Moore 1964; Wenger and Weller 1972, 1973; Anderson 1965, 1968). Moore (1964) first put forward the notion of ‘disaster subcultures’ to refer to these subcultures and shed light on ‘those adjustments, actual and potential, social, psychological and physical, which are used by residents of [hazardous] areas in their efforts to cope with disasters which have struck or which tradition indicates may strike in the future’ (Moore 1964: 195).

Experiencing recurrent disasters pushes communities to develop cultural strategies and practices, to deal with these adverse events and ensure increasing levels of resilience. Since hazards vary per locality, different groups face different potential disasters. Subsequently, wider cultures that cover larger geographical areas, are generally unable to provide all its members with an exhaustive assortment of appropriate hazard-related solutions. In addition, hazards generally do not strike on a daily basis. Therefore, readily available solutions and habitual modes of actions are often insufficient,

and unique adaptations are required to deal with recurrent hazards. Over times this leads to a specific local subculture encompassing adaptive strategies that enable the community at hand to survive within hazardous environments.

Even though disaster subcultures consist of coping mechanisms that communities have historically found adequate, it is important to note that they can become a debilitating factor when conditions change.

**Guiding questions for identifying, analysing and mapping disaster subcultures**

- Are the three key conditions for the development of disaster subcultures met:
  - (1) Does the community face and acknowledge the existence of a recurrent threat?
  - (2) Does the hazard allow for a period of forewarning?
  - (3) Is the impact of hazards salient to different segments (various status levels) of the communities?
- What has been the influence of previous disaster experiences on protective behavior?
- What strategies and practices (socio-cultural, physical) have been developed to deal with recurrent disasters?
- Do formal and informal mechanisms serve to equip newcomers with requisite disaster knowledge?

## **BELIEFS AND RELIGION**

Religion, as part of our definition of culture, influences how we see disasters by providing meaning and sense of the world. It is thought to bind people together, gives comfort, and religious rituals are practiced as a way to cope with disasters. Vice versa, disasters influence religious beliefs by challenging existing interpretations of the world. Overall, religion can be used by people to understand, give meaning to and adapt to natural hazards.

It can be concluded from the literature on the topic of religion and disasters that religion plays an important role in the aftermath of disasters. For individuals affected by disaster, religion can serve a variety of functions. Also, it can be concluded that there is consensus on considering religion as a resource rather than a hindrance in the planning of disaster risk-reduction policies (Gaillard and Texier 2010).

It is possible for disaster management and planning to integrate the leadership roles of clergy and the historical experience of the church in charitable works into effective programmes of disaster relief. Yet again, due to the importance of the local context for religion (Oliver-Smith and Hoffman 2002) and the multifaceted and distinct roles of religious institutions (Cheema et al. 2014), a thorough understanding of the local context is crucial.

**Guiding questions for identifying and analysing the role of religion**

- What religious institutions can be identified in the study area?
- What role does religion play in regular life?
- What is the influence of religion on the understanding and provision of meaning to disasters?
- What has been the function of religious institutions in previous disasters?
- What potential functions of religion can be identified in the different disaster phases?
- What potential obstacles related to religion can be identified in the different disaster phases?
- What is the influence of spiritual leaders on preparedness, response and recovery behavior?

## **GENDER**

For our purpose gender is defined as “the socially defined or constructed roles, attitudes and values which communities and societies ascribe as appropriate for one sex or the other. Gender does not describe the biological sexual characteristics by which females and males are identified. “Gender

roles vary according to socio-economic, political and cultural contexts, and are affected by other factors, including age, class and ethnicity. Gender roles are learned and negotiated, or contested. They are therefore changeable. Besides differences in roles between women and men, roles among women and men differ as well.

Gender dynamics often translate in particular gender specific patterns of vulnerability as well as resilience. They also affect patterns of coping, how disaster experiences are built up, and risks perceived, how risk awareness is distributed and attitudes forged. In many instances the distribution of knowledge, assets, income, livelihood possibilities, decision making power, and access to services are also highly gendered. It now has been recognized that gender inclusiveness is vital for policies to become effective. As a clear example, the Sendai Framework 2015-2030 states as part of its general principles that “A gender, age, disability and cultural perspective should be integrated in all policies and practices, and women and youth leadership should be promoted”

#### **Guiding questions to identifying, analysing and mapping gender issues**

- What are the key community and social norms concerning the roles of men and women in government, wider public, and community?
- Are there specific gender roles that can be identified in response and recovery of disaster?
- How would the effects and impact of disaster differ for men and boys on the one hand and for women and girls on the other?
- How would the effects and impact of disaster differ among men and among women?
- How are women, men, girls and boys included in disaster management planning and implementation processes? Is there a difference?
- Are potential gender-specific patterns of vulnerability and resilience taken into account?
- What are the implications of the above for disaster management in terms of needs, access, and assistance?

### **1.2.Key Topics of EDUCEN**

#### **CULTURAL MEMORY**

Cultural memory involves understanding how catastrophic events are absorbed into history. It reveals how communities adapt their cultural reservoirs over time in light of disastrous events based on accumulated shared experience and local knowledge of a group of people. A distinction should be made between collective memory, or social short term memory, and cultural memory, or social long term memory. Collective memory is based on oral tradition, shared by the group, often the family, and tends to disappear with the death of the last eye witness of the event. Cultural memory goes further back and is understood as a social long-term memory based on written and material sources. This form of memory needs to be underpinned with documents such as newspapers, archives, pictures, monuments, and photo albums (Pfister 2010). These kinds of memories are central to the constitution of culture. Hazards are retained in memory if they occur frequently, and the more frequently they occur, the more people are likely to foresee them and to try to develop adequate adaptive strategies. “All preventive strategies are based on the expectations generated by repeated experiences. Repetition therefore becomes a key concept in historical research on learning from disasters” (Mauelshagen in Pfister 2010). Severe disasters need to be permanently remembered in order to safeguard against the same devastating impact if they recur. The documentation of disasters and extreme events is therefore a crucial element in cultural memory.

#### **Guiding questions to be used as a starting point for analysis and data collection**

- Is there knowledge on previous disasters in the history of the area? What knowledge?
- How are previous disasters documented? (e.g. in the form of written records, photos, videos, documentaries, testimonies, evaluations)
- In what way are they memorized? (e.g. oral history, physical signs, monuments, exhibitions, documentaries)

- Did the memory of disaster in some way inspire the invention of social practices and techniques in dealing with catastrophes?
- How can the memory of the previous disaster(s) be used to inspire the invention of practices/to safeguard against the same devastating impact in your area?
- Is the knowledge on previous disasters in the area integrated in current disaster management practices? If so, how?

## PHYSICAL INFRASTRUCTURE

Physical infrastructures involve amendments to the physical surroundings and landscape to serve a given purpose (e.g. transportation; supply of electricity; or water supply, management, and treatment). There are three elements which form the shape of a city;

1. The man-made structure, including street network and placement of buildings on it
2. The nature
3. Activities (economic, social, organizational)

Although all cities include infrastructure, buildings and activities, the shape, distribution and density of those elements provide the city with its general structure. The pattern of a street network, the building blocks on it and the buildings give shape to a city and structural characteristics differ between cities. Nature also affects the structure of cities. In some cities, natural elements are integrated into the city pattern. The third main element in physical culture of cities are the activities taking place. What and how land is used has an impact on disaster risk and vulnerabilities. We understand a city as a constructed space in which human actions take place. Cities are composed of two things: a large collection of buildings linked by space, “the physical city”, and a complex system of human activity linked by interaction, “the social city” (Hillier & Vaughan 2007). The physical and the social are therefore intrinsically linked.

### Guiding questions to be used as a starting point for analysis and data collection

- How is the city formed by the man-made structure (including street networks and buildings), nature, and activities (economic, social, organizational)?
- How can this infrastructure function as an asset/obstacle to effective urban disaster management?
- To what extent are local building practices adapted to potential disasters?
- Are there risk-sensitive land-use regulations, building codes and health and safety codes across all building types? How well are they enforced?
- How do land use policies and planning regulations for housing and developing infrastructure take current and expected disaster risk into account?
- What measures are being taken to protect critical infrastructure located in high-risk areas?
- What human activities take place that influence disaster risk and vulnerabilities?

## CULTURAL HERITAGE

Cultural heritage is commonly defined along the lines of 'the archaeological and historical built environment and moveable heritage' (Taboroff 2003). This heritage serves a role in preserving local identity and personality, but also local knowledge; preserving heritage has educational purposes in awareness raising, as the layout of a city (plazas, avenues), the construction of buildings and infrastructure may reveal a logic that is often more in tune with urban exposure to natural hazards than today's urban development.

This is even more the case for ancient civilisations. While modern urban citizens are unlikely to be persuaded to live in round Mayan houses for reasons of disaster proofing, preserving knowledge on early civilisations and its context reminds us of tested design principles that are easily forgotten. Material culture is composed of the tangible objects, movable or immovable, that people create or

share, from storm surge barriers and dikes, to disaster-proof houses that protect people from environmental hazards. Preserving and restoring ancient homes, roads and infrastructure can also have a very concrete use in Disaster Risk Reduction, preventing expensive unreflective planning for the future 'from scratch'.

It makes good sense to include the time-honed cultural practices in this definition, and arrive at cultural heritage as the 'products and processes of a culture that are preserved and passed on through the generations' (including also nonmaterial culture).

**Guiding questions to be used as a starting point for analysis and data collection**

- What material cultural heritage is present in relation to disaster in your case? (e.g. objects created or shared that protect people from environmental hazards)
- What is the role of this material cultural heritage in current disaster management?
- What other cultural heritage is present in your case that could be vulnerable to disaster?
- To what extent are measures being taken to preserve this cultural heritage?

## **SOCIAL INFRASTRUCTURE AND SPATIAL SEGREGATION**

Urban places create new and complex emergency challenges concerned with typical city problems such as segregation, socioeconomic deprivation, and inequities in health, well-being, and health care accessibility (Cutter and Emrich 2006). "The most common change in the composition of (mega)city hazard is increased polarization and spatial segregation of groups that have different degrees of vulnerability to disaster" (Mitchell 1999). In cities all over the world it is clear that poor and rich neighbourhoods are diverging with respect to the degrees of risk they are exposed to. Spatial patterns of hazards shift (and exposure increases) as cities grow, Mitchell notes. Spatial segregation is a feature of metropolises all over the world but it does not follow the same geographical pattern in every city. In some cities low-income households tend to live in peripheral areas of the city, while high-income households are more centrally located. In other cities, low-income households are concentrated in city centres, surrounded by suburban areas inhabited by higher income residents. In several cities disadvantaged communities with high concentrations of low-income groups are populated largely by ethnic minorities. Immigrants in West European countries, especially those newly arrived, are for example frequently overrepresented among the urban poor (Arbaci 2007).

Spatial segregation in cities on the basis of ethnicity/race and/or income has clear relevance for hazard vulnerability and disaster management. Understanding the distributional impacts of natural disasters across income and/or ethnic groups and neighbourhoods in a given city is crucial for planning, mitigation and recovery.

**Guiding questions to be used as a starting point for analysis and data collection**

- Can patterns of spatial segregation be identified (e.g. do people with similar income/social or ethnic background live in the same area)?
- What is the nature of this segregation?
- What is the effect of spatial segregation in the study area?
- How does this affect vulnerability and resilience to disaster of specific groups and areas?
- To what extent is spatial segregation taken into account in the different phases of disaster management?

## **SOCIAL AND CULTURAL NETWORKS**

Social capital is typically defined as a function of trust, norms, and networks and is thought to be a key factor in community activities (Joshi and Aoki 2014). Social ties used to link groups and individuals together are referred to as 'networks' (Islam and Walkerden 2014). A growing body of literature emphasizes the role of social capital in the context of disaster management. Social capital, in creating networks, can be subcategorized in three types: bonding-, bridging- and linking social capital. Different case studies demonstrated that the effectiveness of these networks strongly influences the

capability to mobilize social capital in order to reduce disaster impacts (Joshi and Aoki 2014, Islam and Walkerdem 2014) EDUCEN attempts to locate and support the strengthening of networks in cities (bonding capital) while at the same time identifying differences and attempting to provide tools to deal with them (bridging capital) in disaster risk reduction. In the immediate aftermath of the disaster, bonding and bridging networks quickly become relevant. In many cases, spontaneous and informal network operate more or less cooperatively with trained organizations during the response phase (Vallance and Carlton 2014). Similarly, the bonding social networks facilitate the sharing of crucial information needed to keep safe during the emergency. Bridging networks are usually active in providing access to additional resources (Islam and Walkerdem 2014). During the reconstruction and rehabilitation phase, affected communities usually need support from institutions through linking social networks. What the social capital concept emphasises is that community members are active agents rather than passive victims. This provides an important corrective to the predominant top-down, command and control approach, that often dominates in emergency management.

**Guiding questions to be used as a starting point for analysis and data collection**

- What forms of bonding capital can be distinguished? What examples of bonding capital can be distinguished in relation to disaster?
- What forms of bridging capital can be distinguished? What examples of bridging capital can be distinguished in relation to disaster?
- What forms of linking capital can be distinguished ? What examples of linking capital can be distinguished in relation to disaster?
- How do the three types of social capital function under stress?
- How can they be strengthened to function as an asset during disaster?
- What is/ can be the role of social media during heightened risk situations and disaster?

### 1.3. Cultures in DRR

#### LOCAL CULTURE

Besides having to take into account differences in their own organizational cultures, the stakeholders in disaster management also need to take account of the culture of the affected people. In order to reduce risk effectively, the different organizations in disaster management need to understand how to communicate and act in a way that takes account of the perspectives, behaviour, attitudes and understandings of reality, - the culture-, of the affected people (IFCR World Disasters Report 2014). The key to effective performance in disaster risk management and emergency management and ensuring incorporation of culture and risk perceptions of the affected people lies in community participation (Pandey and Okazaki 2005). Communication (risk as well as crisis communication) and trust have come forward as two other important aspects that disaster managers need to take into account in relation to the affected people's culture. Cultural differences therefore must be considered in the development of crisis communication strategies. Moreover, constructing messages is as important as their transmission. For example, technical language or jargon can hinder or confuse the communication of risk. Warning to the general public have to be communicated in a way that residents can relate to. Warning systems need to be attuned to the cultural and social demands of minority groups. Furthermore, language abilities, culture, and literacy levels must be considered when conveying important information (Critchfield et al. unknown).

**Guiding questions to be used as a starting point for analysis and data collection**

- How is local culture taken into account in disaster preparation and response? What examples can be identified?
- To what extent do local communities participate in the different stages of disaster management?
- How are cultural differences considered in risk and crisis communication?
- How are warning systems attuned to the cultural and social demands of minority groups?
- How is communication attuned to different literacy levels and language abilities? (including



minority groups, refugees, migrants, foreign retirees, and people with visual or hearing impairments)

## ORGANIZATIONAL CULTURES

Organizational culture refers to the climate, learned behaviour, and practices that organizations develop over time. It guides the way people work, the way they communicate, and the values they share (Schein 2004 in Thompson 2012). Culture points to phenomena that are below the surface, but that are powerful influences on the organization in important ways. It creates shared values in organizational members and also guides their actions much like an individual's personality does. Culture affects organizations at several levels of operation.

There are important cultural differences between the stakeholders in disaster management which rely on their system of values and their social relations. The cultural differences between the stakeholders involved in disaster management are found in relation to, amongst others, language, training, and resources. The issue of training for example reflects the organizational culture; firemen are trained to deal with fires, the ambulance services treat the injured, and police are trained to manage people. The use of jargon within an organization may also negatively affect the coordination among different actors. Thus, there are several cultural issues to be considered in relation to disaster operations; the safety culture, risk perception, hierarchy, communication and decision-making, learning and training of the involved groups. These factors have significant effect on the perceptions of organizations regarding themselves and towards disaster management (Rozakis 2007).

### Guiding questions to be used as a starting point for analysis and data collection

- When and how do the different stakeholders in disaster management cooperate?
- Which different values and assumptions can be identified between stakeholders in disaster management in your case?
- What different 'language' and terminology can be identified between stakeholders in disaster management in your case?
- How do or can these differences obstruct effective disaster management?
- How do or can these differences function as an asset for effective disaster management?

## ARMED FORCES

From the 1990s onwards, civil and military actors have been operating simultaneously in disaster or conflict situations. The interaction between military and civil societal processes has taken many forms, from operating on parallel processes, sharing of information, to actual shoulder-to-shoulder cooperation (Rietjens and Bollen 2008). Most of the studies dealing with this topic focus on complex emergencies in fragile states rather than on civil-military interaction in response to natural disasters (Tatham and Rietjens 2015). Recent years have however shown increasing attention to the role of the armed forces in disaster response within their own national territory. In many of these disasters, local civilian authorities are overwhelmed and call upon the armed forces to provide first aid and logistical support. Armed forces often have unique capabilities for dealing with specific kinds of emergencies, such as toxic chemical spills, which frequently lack in other response organizations. European (and North American) armed forces have been active in responding to requests by the civilian leadership for assistance. The range of disasters for which military assistance may be required is comprehensive. It ranges from support to local authorities to assist in flood control (Switzerland, Austria, Germany) and firefighting (France, Greece on an annual basis) to providing wide/ranging assistance in responding to major catastrophic events such as earthquakes. The Italian military's response to the L'Aquila earthquake is instructive in this regard (Clarke 2014). Operations conducted by the British Army in response to the flooding in early 2014 in the south and west of England were also extensive, with 3000 troops employed in flood relief and another 5000 on standby.

### Guiding questions to be used as a starting point for analysis and data collection

- How is the deployment of armed forces in domestic contingencies organized?
- What are the domains and tasks that armed forces perform in national disaster relief
- What forms of interaction between civil and military actors can be identified?
- What potential obstacles for involvement of the armed forces in disaster response can be identified in your case?
- What potential assets for involvement of the armed forces in disaster response can be identified in your case?
- Has there been previous experience with assistance from the armed forces during or after disaster? What went well and what led to difficulties?

#### 1.4. Projects and Tools

##### RELATED PROJECTS AT EUROPEAN LEVEL

##### ONGOING PROJECTS UNDER H2020

[CARISMAND: Culture And RiSkmanagement in Man-made And Natural Disasters](#)

[CUIDAR: Cultures of Disaster And Resilience among children and young people](#)

[IMPACT: Impact of Cultural aspects in the management of emergencies in public Transport](#)

##### OTHER RESEARCH PROJECTS

[CAPHAZ-NET: Social capacity building for natural hazards: Toward more resilient societies](#)

[ELITE: Elicit to learn crucial post-crisis lessons](#)

[ENHANCE: Enhancing risk management partnerships for catastrophic natural disasters in Europe](#)

[KNOW4DRR: Enabling knowledge for disaster risk reduction in integration to climate change adaptation](#)

[MOVE: Methods for the Improvement of Vulnerability Assessment in Europe](#)

[NMFRRDISASTER: Identifying the needs of medical first responder in disasters](#)

[PEP: Public Empowerment Policies for Crisis Management](#)

[RACCE: Raising earthquake Awareness and Coping Children's Emotions](#)

[RESILIENCE: Reaching resilience: how to put resilience into practice?](#)

##### TOOLS FOR SOCIAL NETWORK ANALYSIS

A method specifically related to social networks is Social Network Analysis. Several tools have been identified in the literature to conduct network analysis that use open-data, raw-text data input – e.g. information from newspaper. With such data it is possible to conduct scenario analysis to simulate what would happen given a certain set of circumstances. The following box describes the characteristics of the most commonly implemented SNA tools.

- onasurveys <http://www.onasurveys.com>: Combines the survey and data analysis tools into one package.
- yEd It's a Java based (cross platform) programme for drawing complex diagrammes.
- Netdraw It's free, easy to use, and constantly being upgraded. Combined with Ucinet (not free), a very complex and powerful tool.
- Proximity Open-source software under development by the Univ. of Massachusetts Knowledge Discovery Laboratory. It is specifically designed for social network analysis and other similar applications.

- InFlow
- Pajek Look at Pajek - a social network analysis software. It is freeware.
- AutoMap ([www.casos.cs.cmu.edu/projects/automap/](http://www.casos.cs.cmu.edu/projects/automap/)) is a product of CASOS at the Carnegie Mellon University and is a text mining tool that enables the extraction of network data from texts.
- BioWar ([www.casos.cs.cmu.edu/projects/biowar/](http://www.casos.cs.cmu.edu/projects/biowar/)) is a CASOS package that enables community leaders to prepare for biological attacks using computational models of social networks and communication media.
- Construct ([www.casos.cs.cmu.edu/projects/construct/info.html](http://www.casos.cs.cmu.edu/projects/construct/info.html)), developed by CASOS, is a multiagent model of group interactions where agents communicate, learn, and make decisions in a continuous cycle.
- DyNet ([www.casos.cs.cmu.edu/projects/DyNet/dynet\\_info.html](http://www.casos.cs.cmu.edu/projects/DyNet/dynet_info.html)) is a reasoning support tool intended to simulate reasoning about dynamic networked organizations under varying levels of uncertainty.
- i2 Analyst's Notebook ([www.i2inc.com/products/analysts\\_notebook/](http://www.i2inc.com/products/analysts_notebook/)) is a commercial visual investigative analysis tool that allows investigators to organize large volumes of disparate data and conduct link and timeline analyses.
- Organizational Risk Analyzer (ORA) ([www.casos.cs.cmu.edu/projects/ora/](http://www.casos.cs.cmu.edu/projects/ora/)) is a risk assessment tool that examines network information and identifies individuals or groups that are potential risks to a network given social, knowledge, and task network information.
- Palantir ([www.palantirtech.com/](http://www.palantirtech.com/)) is a commercially available information analysis platform for integrating, visualizing, and analyzing structured, unstructured, relational, temporal, and geospatial data.
- Starlight Information Visualization System ([starlight.pnl.gov/](http://starlight.pnl.gov/)) is a visualization-oriented user interface for temporal and spatial information analysis and network modeling

## Games and Simulations

### Examples of Policy exercises, simulations, and games to improve disaster preparedness and response actions

**Crossroad: Kobe:** is a multi-purpose disaster risk communication tool that was created at the crossroads of the first, second and third modes of risk sense. The game encourages participants to inject their own views in persuading others and negotiating with each other in the scenario reconstructing the Kobe earthquake.

**The Disaster Imagination Game (DIG)** is a newly developed method for disaster drill based on the know-how of the Commanding Post Exercises of the JSDF (Japan Self-Defence Forces), it uses maps and transparent overlay. Participants of DIG will be appointed to members of the virtual commanding post of disaster relief activities. By recording various details on maps, participants can easily grasp the situation of affected areas, and also easily discuss how to command relief activities.

**Disaster in my backyard:** the game is set in a rainy period; heavy rains of the past days have caused the rivers to burst from their banks. Due to the rising water, residents of the affected area need to be evacuated, some needing assistance ( you can change the scenario of a disaster). Authorities are taken by surprise and the participants are called upon to assist in combating the unfolding disaster. They need to manage the information flow, organize the response and assist the affected population.

**Extreme Event Game:** This in-person role-playing game gives participants a taste of what it takes to build community resilience in the face of disaster. Players work together to make decisions and solve

problems during an engaging, fast-paced disaster simulation. There are three different scenarios available. Players can play using print outs or tablets and laptops.

**Gender Walk:** the game was designed in order to explore gender dynamics within community. It is a perfect tool to reflect on how adaptation measures can effectively address gender dynamic.

**Ready!:** it is a physical game which introduces players to the topic of disaster preparedness and disaster risk reduction. It shows an innovative approach to focusing attention on those issues. The game is prepared to be set in a real-case scenarios.

**Stop disasters:** this disaster simulation game, (from the United Nations (UN) and International Strategy for Disaster Reduction (ISDR) enables players to experience 5 natural environmental hazards (wildfires, earthquakes, floods, tsunamis and hurricanes), by understanding their risks and applying effective methods of prevention and mitigation.

**Story go round:** the main goal of this game is to teach local communities how to be creative about managing disasters with locally available resources. “Story Go Round” uses storytelling as a way of approaching disaster management and process of decision-making.

**The Climate and Gender game:** the game supports learning and dialogue on the different vulnerabilities of women and men facing climate variability and change, using examples of floods and droughts.

## 2.Guiding questions

### Reflecting on key aspects of culture as asset and obstacle to effective urban disaster management

#### How to use this guide

This document intends to provide guidance on reflecting on culture in urban disaster management. The guide builds on the information gathered during the course of the EDUCEN project and intends to point out things to recon with when working with culture and disaster.

At the start of the EDUCEN project, 14 key topics in relation to culture and disaster have been identified: 1) vulnerability, 2) resilience, 3) risk perception, 4) disaster subcultures, 5) beliefs and religion, 6) gender, 7) cultural memory, 8) physical city infrastructure, 9) cultural heritage, 10) social city infrastructure (e.g. spatial segregation), 11) social capital and networks, 12) organization cultures, 13) organizations and local culture, 14) the involvement of the armed forces in disaster management.

This document provides a starting point for actors who have encountered culture in their disaster work, or, who aim to include culture in disaster risk reduction/management strategies.

#### Objectives

- 1) Assisting different actors with their reflections on culture as asset and obstacle to effective urban disaster management at different levels (national, organisational, operational, local, subcultural, gender)
- 2) Making available guiding questions that can be used as a starting point for exploration of topics relating to culture and disaster.

Each guide consists of a short description of the topic and several guiding questions that can be used to get started on culture in disaster risk reduction.

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### 2.1. Analyzing, identifying and mapping (social) vulnerability

#### GUIDING QUESTIONS