STAKEHOLDERS ENGAGEMENT IN THE DISASTER RECOVERY PHASE AS A MEANS OF INCREASING RESILIENCE COMMUNITY

Eliška POLCAROVÁ[1], Jana PUPÍKOVÁ[2]

Review article

Abstract:	This article focuses on the role of stakeholders in ensuring the protection of the community, on the evaluation of their goals and tasks in the phase of disaster recovery. It introduces the issue of community resilience and its connection with disaster management. It describes the life cycle of disaster management, its individual phases, and processes to reduce risks and ensure sustainable development. Subsequently, a detailed analysis of stakeholders is played, who plays a crucial role in disaster management in the reconstruction phase, both at the national and local levels, in the public and private sectors and within communities.
Keywords:	Community, Disaster, Recovery, Resilience, Stakeholders.

Introduction

Every disaster (fire, tsunami, floods, war conflict) has a different development. It can take hours, days, but also weeks or years. Accordingly, the recovery time of the damaged area and the affected community also depends on it. Community regeneration can take varying lengths, as each member of the community is otherwise vulnerable and needs a different time to recover. Against this background, we need to focus on disaster recovery planning. Lessons from previous disasters can help learn and better prepare for upcoming, and new disasters and better protect people's lives, infrastructure, and the environment. An effective strategy requires a coordinated approach and reallocation of tasks and responsibilities between stakeholders, be it government, community, individuals, businesses, and all levels of government (Queensland fire and emergency services, 2018). Based on the above, the article will focus on the evaluation of the goals and tasks of stakeholders in the disaster recovery phase aimed at protecting (resilience) the community.

Community resilience

Community resilience is taken as the ability of the community (with an acceptable level of vulnerability) to adequately react with available tools, resources, and information to the security of the risk, thereby managing and mitigating the consequences of these risks. The different skills and resources of community members can be used to effectively respond, prepare, and address the impacts of large-scale security risks. Practical experience of working with disaster-affected communities internationally is presented, for instance, in the book Community Engagement in Post-Disaster Recovery (Marsh et al., 2017). Community resilience plays an essential role in disaster management (how quickly it can respond and recover from a negative situation).

Disaster management lifecycle

The primary objective of successful management of all-natural and human hazards includes prevention, prediction, protection, and disaster recovery (Smith, 2002). Potential losses to the life and health of people, infrastructure, and the environment should be reduced and avoided (where appropriate minimized). Last but not least, ensure emergency assistance to victims and initiate rapid and effective disaster recovery (Warfield, 2008). It should be noted that all these phases are essential. Smith (2002) divides disaster management into two phases: Disaster Protection and Disaster Recovery (Fig. 1). Disaster protection includes risk assessment, mitigation, and preparedness. Disaster recovery consists of three main phases - relief phase (rescue work), rehabilitation phase (restoration of public services), and the recovery phase (improvement of infrastructure).

[1] VŠB - Technical University of Ostrava, Faculty of Safety Engineering, Ostrava, Czech Republic, eliska.kristlova@vsb.cz

[2] The College of Regional Development and Banking Institute - AMBIS, a.s., Praha, Czech Republic, jana.pupikova@ambis.cz
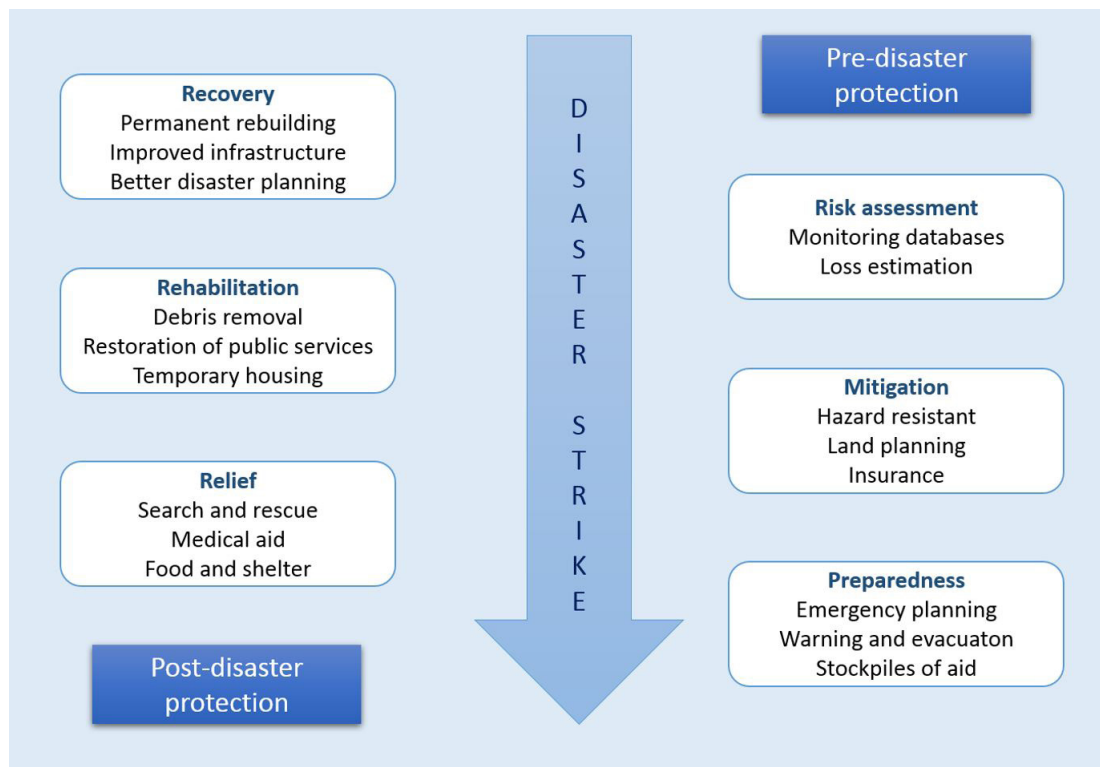
Fig. 1 Disaster Management Lifecycle (modified from Smith, 2002)

Fig. 2 Building community resilience (author)

The disaster management cycle includes activities that illustrate the ongoing processes by which governments, businesses, organizations, and communities plan and reduce the impact of disasters. Appropriate measures at all named points in the cycle lead to greater preparedness, better warning, disaster prevention and, at the same time, increased community resilience after each "new" disaster (Fig. 2).

The document Build Back Better in Recovery, Rehabilitation, and Reconstruction (UNISDR, 2017) aims to identify, address resource needs and needs in disaster recovery planning. Increase the likelihood that risk reduction and sustainable development options will be implemented. Positive recovery results depend mainly on quality programs and mechanisms that support the recovery of the damaged area by using human, financial, or other resources and the transfer of the right information between stakeholders.

Phase early recovery

The early recovery phase can take days, weeks or months, depending on the nature of the disaster and local conditions. The needs of the community at this stage are primarily immediate medical care, food and water, clothing and shelter. This "response phase" includes activities such as rescue work, first aid, firefighting and evacuation. Activities carried out during and after the disaster include helping the affected community, minimizing damage caused by secondary or recurring effects of the disaster (emergency medical care, shelter and evacuation, search and rescue, food security, clothing, shelter). According to Figure 2, this phase is referred to as

post-disaster recovery. Short-term activities at this stage restore vital life support structures. On the other hand, long-term activities seek to return community life to normal conditions as before the disaster. Long-term activities include dirt removal, pollution control, temporary housing and facility restoration (Khan et al., 2008; Lloyd-Jones, 2006).

Phase rehabilitation

After satisfying the basic needs of the population, the communities cope with the impacts caused by the disaster and begin to enter another so-called rehabilitation work, which is very important in the long run. Measures taken in the first weeks or months after a disaster include measures to ensure the restoration of essential services that allow the affected community to return to at least pre-disaster status (Khan et al., 2008; Lloyd-Jones, 2006).

Phase relief

The relief phase follows the recovery and rehabilitation phases. Once the disaster is under control, the affected community can carry out life and infrastructure restoration activities. This phase is called the long-term renewal phase as well as the reconstruction phase. There is no milestone to determine precisely when the rehabilitation phase ends, and the relief phase begins. Activities at this stage build on those from previous phases and continue until most important systems return to a standard or better condition. The most critical systems include housing, communication and information transfer, safety and health education,

basic infrastructure, food, and water. This phase is suitable for many opportunities to improve prevention and increase preparedness and resilience, thereby reducing community vulnerability (Khan et al., 2008; Lloyd-Jones, 2006).

Definition and typology of stakeholders

The success of disaster recovery depends mainly on the selection of suitable stakeholders. Stakeholders may include individuals, groups of people, organizations and institutions that can influence their recovery strategy through their knowledge and experience. Freeman (1984) defines stakeholders as any element (individuals, groups of people, organisations, and institutions) without which the system would not survive. According to Mojtahedi and Oo (2014), stakeholders are enthusiastic about the work of the Foundation and can influence how they achieve the goals of the community. In contrast, Philips at al. (2003) sees stakeholders as an element that contributes to essential leadership but also benefits from results. From this perspective, it can be said that stakeholders are people, assemblies, or associations that can influence or be influenced by the effects of a disaster.

According to Mitchell et al. (1997), three essential attributes need to be considered to achieve the desired goals: power, legitimacy, and urgency of individual stakeholders. Different types of stakeholders can be identified by the possession of attributes, such as the stakeholder's power to influence the organisation, the legitimacy of the stake-holder's relationship with the organisation,

1. Dormant stakeholders
   (power, no legitimacy, and no urgency)
2. Discretionary stakeholders
   (legitimacy, but no power and no urgency)
3. Demanding stakeholders
   (urgency, but no legitimacy and no power)
4. Dominant stakeholders
   (power and legitimacy, but no urgency)
5. Dangerous stakeholders
   (power and urgency, but no legitimacy)
6. Dependent stakeholders
   (legitimacy and urgency, but no power)
7. Definite stakeholders
   (power, legitimacy, and urgency)
8. Non-stakeholders
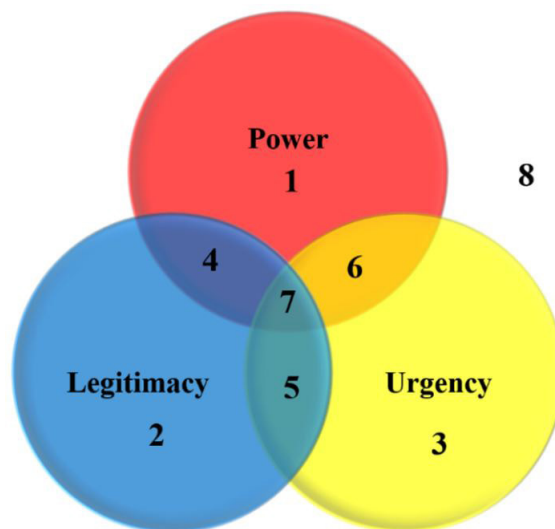   (no power, no legitimacy, and no urgency)

Fig. 3 Typology of stakeholders (modified from Mitchell et al., 1997)

and the urgency of the stakeholder's claim on the organisation. Based on these attributes, there are seven types of stakeholders: dormant, discretionary and demanding (the so-called latent stakeholders), dominant, dangerous and dependent (or expectant stakeholders), and definitive stakeholders. An individual or firm that is not part of any of these categories it probably a non-stakeholder. Fig. 3 presents the typology of stakeholders, including their attributes.

The first categories of stakeholders are the so-called latent stakeholders. These parties have only one of three attributes (power, legitimacy, or urgency).

1. Latent stakeholders who have only power are called dormant. However, having power does not always mean using it. This group includes stakeholders who can invest much money in the project, such as wealthy individuals or banks.

2. Latent stakeholders who have just legitimacy are called discretionary. These actors have no power to influence projects and at the same time, have no urgent demands. This category includes, for example, non-profit organizations, schools, and hospitals that receive donations and offer voluntary help.

3. Latent stakeholders who have just legitimacy called demanding. An example is usually alone protester, whom managers, despite his demands and exciting ideas, usually reject.

The second category includes expected stakeholders who have any two of the three attributes and therefore "expect" something from the organization.

4. Stakeholders who have power and legitimacy are called dominant. These actors usually have a formal negotiating mechanism in place. This category includes, for example, corporate boards, which include representatives of owners, creditors, and community leaders.

5. If urgency and power come together, dangerous stakeholders will be formed. Environmentalists who try to protect nature and reduce deforestation can be included in this category.

6. Interested parties with urgent and legitimate claims shall be called dependent. In the event of an oil spill, various groups may have urgent and legitimate claims, but instead lack the formal power to impose it.

7. The third category combines all categories and is called definite stakeholders. This category includes, for example, shareholders who act on the way their shares move.

8. Conversely, the last category non-stakeholders include those stakeholders that do not have any of the given attributes.

Fig. 4 identifies seven stakeholders who play an essential role in disaster management in the recovery phase.

Fig. 4 Type of stakeholders during disaster recovery

National governments

Within their jurisdiction, the national government must establish a legal framework for disaster risk management, to encourage local governments to reduce disaster risk and set the responsibilities of key stakeholders. The introduction of local, sustainable development mechanisms, including building regulations, land assessment, protection, and improvement of critical infrastructure, should also be encouraged. Another task is to have funding mechanisms for disaster recovery and to carry out audits on the proper management of finances at regular intervals (control of statements, projects, etc.). Under this mechanism, the government should reflect on ways to increase donor involvement in longer-term financial assistance. Governments must focus on strengthening and implementing Disaster Risk Reduction mechanisms to support disaster recovery planning, operations, and coordination. At the same time, implement policies and activities of sustainable development, disaster risk reduction, and climate change adaptation into the whole structure. During a disaster, the government needs to provide the community with relevant and accurate information on the course of the disaster and ensure sufficient access to the experts involved in disaster

recovery. The national government should also focus on investing in disaster recovery training and education. Develop knowledge and exchange of information and experience among other members, community, private sector, non-profit organizations, and other stakeholders (Smith, 2012).

Local governments

In the case of disaster management, the local government has several key objectives. The first of all, to define the tasks and responsibilities of the individual members involved in post-disaster recovery. Secondly, the published emergency regulations or decrees must have a given structure and clarity to achieve the recovery objectives set out as quickly and as possible. Nowadays, local government should support the integration of sustainable development, disaster risk reduction, and climate change adaptation policies and implement them in disaster risk reduction, emergency, and disaster recovery plans. At this stage, it is also necessary to communicate relevant information on the disaster to the general public and other stakeholders (Smith, 2012). It should be taken into account that water and soil can be contaminated with chemicals, building materials or bodies of dead animals and humans during a disaster. Therefore, the government must ensure how to dispose of waste and contaminated materials and dead bodies to prevent the spread of diseases (Government of South Australia, 2018).

Communities

Communities are also key stakeholders in disaster recovery. In particular, the most vulnerable are essential for early warning systems for the population. Their cooperation in the system and their responsiveness will ultimately determine the degree of risk of disaster. In this case, the geographical location of the communities is a crucial factor. For example, island communities must be educated in the area of early warning of tsunamis and earthquakes and be adequately prepared for the possible consequences of these disasters.

Conversely, mountain communities should be trained in landslide or avalanche preparedness. Community support can lead to a faster recovery of services necessary for the basic survival of the population and represents an opportunity to build a more resilient community and better conditions and community preparedness for the next disaster. The community should help each other during the reconstruction. Some community members may already have experience from a previous event and may, therefore, provide their knowledge to other victims (Smith, 2012; UN/ISDR, 2016).

Non-government organizations (NGOs)

Many people lose shelter, family members, or work during a disaster. In this case, it is tough for victims to deal with this challenging life situation, and it is, therefore, necessary to involve non-profit organizations to help these people. One of the activities of non-profit organizations is to provide basic needs for community survival (mainly providing bottled water and food, medical care). During the organization of collections, the organization obtains a large number of necessary items (clothing, household goods, sanitary items, toys), which are then redistributed to the needy communities. Other important activities of the organization include crisis intervention and health care. For example, the Red Cross provides personnel security shelters, food, and clothing for disaster victims, community preparedness, and education programs (Smith, 2012).

Among other things, very often the major international non-profit organizations Red Cross and the Salvation Army are included in the reconstruction. Local or regional organizations should also be involved in rebuilding the territory, mainly after the leading players (FEMA, Red Cross) have met all their commitments and reached funding limits. These organizations can then provide their assistance and services to the local community (Arsenault, 2016).

One of the other obstacles is transferring knowledge to the local community to make it more resilient to other disasters. An example is the construction of new houses, which should be designed according to local culture and traditions. As a result, NGOs should focus on communicating with the local community during recovery, taking into account local skills and capacities, and helping communities to adapt to changing needs (Jigyasu, 2013).

The private sector

According to Mojtahedi and Oo (2016), the private sector is perceived as a dormant stakeholder because it has almost zero communication with the "world." It can force its will to the association, but its capacity remains unused. Private areas include various experts ranging from the manufacturer, entrepreneur to protection experts. Collaboration with the private sector is essential as they are better equipped to implement Information

and Communication Technologies-based solutions. In the recovery phase, the private sector provides qualified services in the form of technical workforce, services (in kind or money, gifts, or goods) (UNISDR, 2016). The most important are suppliers of basic services (gas, electricity, telecommunications, water, and sewage infrastructure). Suppliers should ensure, during, and after the disaster, the re-supply of the population with these services, mainly drinking water and electricity. If necessary, provide alternative supply (bottled drinking water, tank trucks, power generators) (Queensland fire and emergency services, 2018).

The social media

Communication channels (internet, television, radios, newspapers) provide an opportunity to disseminate important information to various groups of the population during and after the disaster. Social media is seen as an essential element with a specific mission in the recovery phase, as it can play an essential role in connecting the community with other stakeholders. In the first case, the media is used to mobilize online volunteers who are far from the epicentre of the disaster and relay information provided by emergency services. The national and the local government must cooperate with the local media during the recovery. Consult what information and instructions will be passed on to the general public in order not to create a panic that would further aggravate the situation. Thanks to the media, families can be sure that their family members and friends are safe. On the contrary, the media help to identify victims and survivors. The media is an excellent means of raising awareness about the consequences of disasters. They can be used to fund and provide support or donations to help the affected community. However, biased or incomplete information about collections (place and date of collection, the focus of the collection - blankets, clothes, toys) can prolong the redistribution of needs to the people who need it most, thus extending the period of reconstruction. During the recovery, NGOs work with the media to report on a crisis intervention method that seeks to improve, avert, or overcome the adverse situations of affected community members. On the other hand, the use of social media to communicate disasters, mainly social networks, in some cases leads to the dissemination of misinformation and panic (Lindsay, 2011; Asgary and Ayvaziankari, 2013; Wendling et al., 2013).

Universities and Research Institutions

Universities and scientific communities provide specialized scientific and technical information that can better assist the government, the private sector, and non-profit organizations in disaster recovery. Expertise and experience are essential for designing projects and plans for rapid disaster recovery (UNISDR, 2017). These institutions, in cooperation with the stakeholders mentioned above, can provide training for local communities to raise awareness of the risks, consequences of disasters, and how best to prepare for others. Under these programs, it should be possible to assess the progress of rescue and recovery work from the perspective of all stakeholders and to propose new proposals and procedures and to implement them in appropriate regulations and policies, emergency and disaster recovery plans (Smith, 2012).

Military forces

The use of military forces to restore the affected area after disasters is a long-standing tradition in all parts of the world. Today, the military is involved in humanitarian operations in the recovery phase much more intensively than before. Army aircraft are used to deliver food, supplies, or medical aid to the affected areas, or where a disaster has damaged infrastructure and is challenging to reach the community by land. Besides, the military is equipped with the tools and equipment, labour, and technical forces (logistics and communications) needed to manage disasters effectively. Coordination and communication between the military and humanitarian organizations have several obstacles (differences in culture, priorities, and ways of working) that lead to success and failure of restoration work. Against this background, more effective ways of coordination between the military and international humanitarian organizations should be developed. Specific tasks and responsibilities should be defined within the Strategic Recovery Plan, with military forces placed under civilian control. The plan should identify the resources needed for recovery and which the military can quickly provide (transport, communication, and health services). It will be easier for public authorities to manage these resources (Cuny, 1991).

Conclusion

Humanity has been threatened continuously by various disasters since the beginning of its existence. In the past, dangers included social and religious clashes, and later industrial accidents and natural disasters. With the development of technologies, other dangers have emerged in the form of failure to master these technologies (nuclear energy or information technology). All of these disasters have many adverse effects on the community. However, a disaster can also be seen as an opportunity to create a better environment than in the past. Disaster recovery is seen as a return to a stable state and the beginning of further development, with the cooperation of all stakeholders, local and international, to make the local community, infrastructure and environment more prepared and resilient in the next disaster. For the recovery of the damaged area to be most effective, strategies for sustainable development, disaster risk reduction and adaptation to climate change need to be linked and implemented.

Acknowledgments

References

Arsenault, K. 2016. NGOs: Filling Gaps In Disaster Planning, Response, Recovery [online]. EDM Digest, 2016 [cit. 2020-07-19]. Available at: https://edmdigest.com/resources/ngos-filling-gaps-in-planning-response-recovery/

Asgary, A., Ayvaziankari, D. 2013. Media Coverage of Post-disaster Recovery and Reconstruction: The Case of the 2012 East Azerbaijan Earthquake. In 6th International i-Rec Conference on Sustainable Post-Disaster Reconstruction: From Recovery to Risk Reduction, Ascona, Switzerland, 26-30 May 2013.

Cuny F.C. 1991. Dilemmas of Military Involvement in Humanitarian Relief. In Gordenker L., Weiss T.G. (eds): Soldiers, Peacekeepers and Disasters. Issues in Peacekeeping and Peacemaking. Palgrave Macmillan, London.

Freeman, R.E. 1984. Strategic Management: A Stakeholder Approach. Boston: Pitman Publishing Company.

Jigyasu, R. 2013. How NGOs Can Help in Disaster Recovery [online]. Global Policy Forum, 2013 [cit. 2020-08-05]. Available at: https://www.globalpolicy.org/component/content/article/176/31256.html

Lindsay, B. R. 2011. Social Media and Disasters: Current Uses, Future Options, and Policy Considerations. Washington, D.C.: Congressional Research Service.

Khan, H., Vasilescu, L. G., Khan, A. 2008. Disaster management cycle-a theoretical approach. Journal of Management and Marketing, 6(1): 43-50.

Lloyd-Jones, T. 2006. Mind the Gap! Post-disaster reconstruction and the transition from humanitarian relief. RICS. ISBN 1-84219-298-1.

Marsh, G., Ahmed, I., Mulligan, M., Donovan, J., Barton, S. 2017. Community Engagement in Post-Disaster Recovery. 1st edit. London: Routledge. ISBN 978-1-138-69167-4.

Mitchell, R. K., Agle, B. R., Wood, D. J. 1997. Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. The Academy of Management Review, 22(4): 853-886. DOI: 10.2307/259247.

Mojtahedi, S.M.H., Oo, B.L. 2014. Stakeholders' Approaches to Disaster Risk Reduction in Built Environment. Disaster Prevention and Management, 23: 356-369.

Mojtahedi, M., Oo, B. L. 2017. Critical Attributes For Proactive Engagement Of Stakeholders In Disaster Risk Management. International Journal of Disaster Risk Reduction, 21: 35-43.

Phillips, R., Freeman, R.E., Wicks, A. 2003. What Stakeholder Theory Is Not. Business Ethics Quarterly, 13(4): 479-502.

Queensland fire and emergency services. 2018. Queensland: Prevention Preparedness, Response and Recovery Disaster Management Guideline. Brisbane: Queensland Government.

Government of South Australia. Disaster Waste Management Guidelines [online]. Green Industries SA, 2018 [cit. 2020-09-02]. Available at: https:// www.greenindustries.sa.gov.au/_literature_190773/Disaster_Waste_Management_Guidelines_(2018)

Smith, G. 2012. Presentation: Disaster Recovery and Reconstruction [online]. SlideServe.com, 2012 [cit. 2020-08-21]. Available at: https://www.slideserve.com/mantreh/session-10-disaster-recovery-and-reconstruction

Smith, K. 2002. Environmental Hazards: Assessing Risk and Reducing Disaster. 3rd edit. London; New York: Routledge. ISBN 0-415-22464-0.

UN/ISDR Platform for the Promotion of Early Warning. 2006. Developing Early Warning Systems: A Checklist. In EWC III - Third International Conference on Early Warning, 1-10.

UNISDR. 2017. Build Back Better: In recovery, rehabilitation and reconstruction. Geneva: United Nations Office for Disaster Risk Reduction.

Varghese, S. 2018. IBM Services using Zerto solution for disaster recovery. [online]. iTWire, 2018 [cit. 2020-07-30]. Available at: https://www.itwire.com/enterprise-solutions/82168-ibm-services-using-zerto-solution-for-disaster-recovery.html

Warfield, C. 2018. The Disaster Management Cycle [online]. The Global Development Research Center, 2018 [cit. 2020-07-19]. Available at: http://www.gdrc.org/uem/disasters/1-dm_cycle.html

Wendling, C., Radisch, J., Jacobzone, S. 2013. OECD Working Papers on Public Governance No. 24: The Use of Social Media in Risk and Crisis Communication. OECD, 24. DOI: 10.1787/5k3v01fskp9s-en.