

SOLIDARNA FOUNDATION  
Community  
Engagement  
Guidelines for the  
Croatian post-  
earthquake context

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# List of abbreviations

AAR – After-Action Review

CBDRR – Community-Based Disaster Risk Reduction

CBDRM – Community-Based Disaster Risk Management

CPR – Cardiopulmonary Resuscitation

CSO – Civil Society Organizations

DRR – Disaster Risk Reduction

EBRD – The European Bank for Reconstruction and Development

GDPR – General Data Protection Regulation

HIP – Humanitarian intervention plan

JECF – Japanese-EBRD Cooperation Fund

NGO – Non-governmental Organization

PPP – Public-Private Partnerships

SMŽ – Sisak-Moslavina County

UN – United Nations

# FOREWORD

After the 2020 earthquake in the City of Petrinja and the wider Sisak-Moslavina County a tremendous number of businesses, civil society organizations, and informal civic groups from around Croatia and the region invested time, material and financial resources in order to help the victims right from the first day, even some are still today working with and for the citizens. Enormous efforts have been put to provide food, shelter, other necessities, mental support, temporary and long-term housing alike with the goal to secure economic and social stabilization and recovery.

All these efforts need to be engaged and managed in order to maximize its impact. Therefore, the local government and other local institutions have the task to build up tools, processes and protocols that will support all the stakeholders involved in their coordination and communication.

The Petrinja Post-Earthquake Urban Regeneration project, supported by the Japanese Government via the Japan-EBRD Cooperation Fund (JECF), supports the City Administration of Petrinja in implementing post-earthquake reconstruction, rehabilitation and preparedness measures. The European Bank for Reconstruction and Development (EBRD) recognizes the significance of investing in urban sectors and municipal engagement to bring about tangible long-term improvements in quality of life.

This document provides guidelines and recommendations on stakeholder engagement and management in times of crisis, specifically natural disasters such as earthquakes. The aim is to support and guide the City of Petrinja in preparing for the next potential disaster and to become a point of expertise and disaster management.

# INTRODUCTION

The guidelines community engagement and management in this document are focused on the role of the public, for-profit and nonprofit sector in the relief, stabilization, and recovery phase after a natural disaster, specifically an earthquake for the local context of the City of Petrinja but they can be transferred to other local communities as well. The recommendations are based on the experience after the 2020 earthquake that hit Petrinja and its surrounding where a tremendous effort to provide relief and assistance to people in need has been seen from individuals, nonprofit and for-profit organizations from the local community but from the whole country and international ones alike.

The goal of these guidelines and recommendations is to set a basis for the local community to develop a robust engagement and management system through a participative approach that has internationally proven to have best results in maximizing the impact of support provided to citizens and communities.

The introduction is followed by a chapter on the importance of stakeholder management in times of crisis. The third chapter focuses on the people-center approach of Community-based disaster risk management as a framework for engaging stakeholders in resilience building and preparation activities.



Image 1. Self-Help, Mutual Aid, and Public Assistance (source: Japan's Disaster-Resilient and Environmentally Friendly City)

As the City of Petrinja has a recent experience with an earthquake in late 2020 it was essential to build the guidelines and recommendations based on the lessons learned from the post-disaster efforts in 2021 and 2022. These lessons are described in the next chapter based on the evaluation and experiences of stakeholders from the public, for-profit, and nonprofit sector. After this the guidelines on sectoral roles, strengths, and opportunities are presented which are followed by five specific recommendations for developing better post-earthquake community engagement and management. At the end of the document two addendums are added, one with practical recommendations for citizens, and one with specific recommendations for businesses.

The set of specific recommendations are based on the research and assessment conducted by the SOLIDARNA Foundation that has been done in cooperation with local and national stakeholders who participated in the disaster response effort for the Petrinja earthquake.[1] The research aimed to identify their experiences after the 2020 earthquake as well as their expectations for a potential future natural disaster. This provides a baseline to detect critical points for improvement and opportunities for financial and non-financial investments by the local authorities to enhance its capabilities for community engagement and stakeholder management in critical phases after a natural disaster.

These recommendations focus on activities in the rescue and evacuation, providing immediate relief and continuous support phases of the Resilience Wheel while not going into the structural condition assessment. The set recommendations are based on international best practices taking specifically Japanese experience into account that are transferable to the Petrinja social and economic context.

In times right after a disaster local communities and public offices can develop its stakeholder engagement and management activities based on the very useful Japanese support philosophy where individuals will take action to secure safety for themselves and their families (Self-Help), local and national organizations, for-profit and nonprofit alike, take action the provide aid and support to the local communities (Mutual Aid) and the national and local government works to improve critical infrastructure and provide means for better self-help and mutual aid.

The following suggestions are in line with international and national policies, such as The Sendai Framework, the Sustainable Development Goals of the United Nations Program for Sustainable Development 2030 from 2015 (UN Agenda 2030), the Paris Agreement on Climate Change from 2015 and the Glasgow Climate Agreement from 2021 reached at the United Nations Conference on Climate Change in 2021. The guidelines are also based on the Croatian Disaster Risk Management Strategy as well as experiences and lessons from the support provided by public, for-profit and nonprofit organizations after the 2020 earthquake.

This document provides an introduction to the importance of community-based approach, with practical, first-hand recommendations on community engagement and management for post-earthquake activities in the Croatian/Petrinja context of the public sector, business sector, nonprofit organizations and community members and residents. This document gives an insight to local context and experience, and aims to provide recommendations on post-earthquake community engagement activities, which is essential for stakeholders to enhance the effectiveness of support provided as well as adaptiveness of their work in times of crisis.



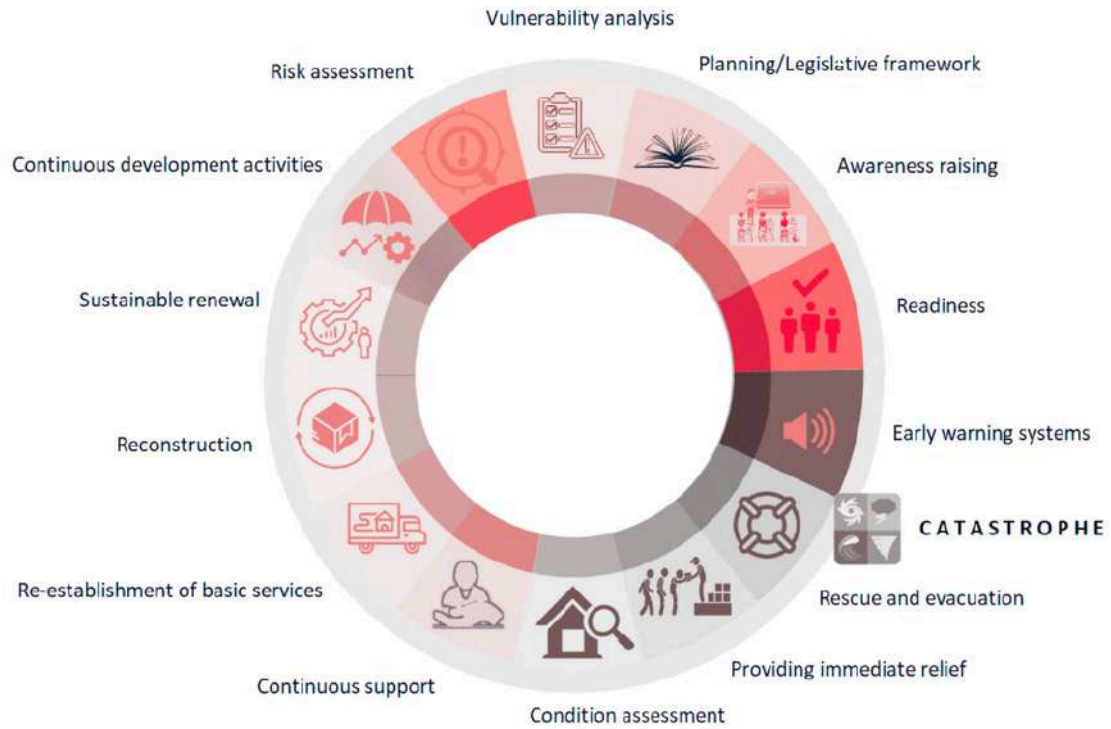


Image 2. The Resilience Wheel (source: Croatian Disaster Risk Management Strategy until 2030)

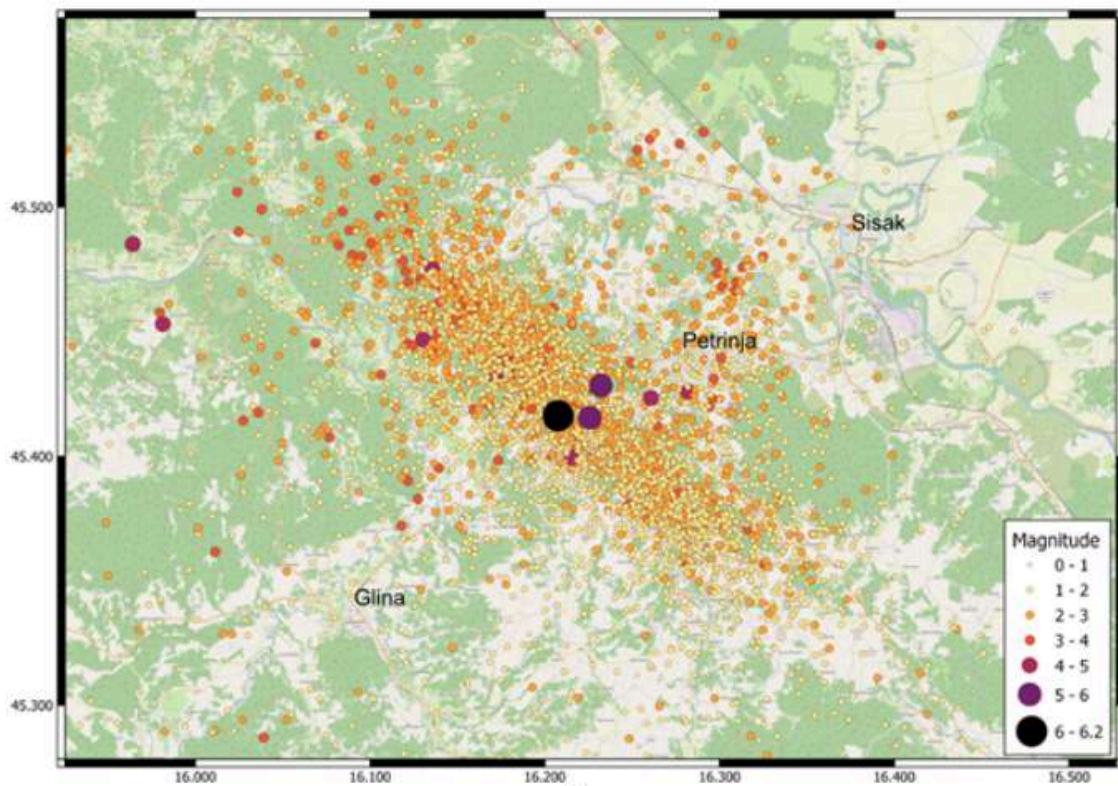


Image 3. Map of the earthquake epicenters in the Petrinja area from the 2020. (source: University of Zagreb, Faculty of Science, Department of Geophysics)



# LOCAL CONTEXT

On December 29, 2020, a powerful earthquake, measuring 6.2 on the scale, hit Sisak-Moslavina County, specifically close to Petrinja. Just the day before, on December 28, 2020, there was another quake with a magnitude of 5.0. Following the main earthquake on December 29, 2020, there were several aftershocks, including another magnitude 5.0 earthquake on January 6, 2021. Seven people lost their lives, 15 were seriously injured and had to be hospitalized, and many others suffered minor injuries. The earthquake also caused significant damage to buildings, infrastructure, and the overall community, impacting both the local economy and society as a whole.

By the end of 2021 more than 40 000 damaged buildings were reported and the earthquake affected economic activities, social service provision, and the damage and loss of property and livelihood left a strong impact on the lives of thousands of people living in the affected areas.[2]

The affected areas now require reconstruction and rehabilitation, and this presents an opportunity to promote a Build Back Better agenda and re-think disaster risk reduction strategies, and community engagement and management protocols in case of future potential disasters. At the same time it presents a great opportunity to evaluate community engagement and management after the Petrinja earthquake, underline lessons learned with the goal of knowing what to expect and to be prepared for future potential natural catastrophes.

Considering Petrinja within the wider Sisak-Moslavina County context, it's important to understand the particular disaster risks and social challenges faced by the community. The risk assessment of potential major hazards for the area pointed out a number of critical threats, among them earthquakes, pandemics, extreme temperatures, industrial accidents, floods and open fires. These kinds of risks have different levels of threat where pandemics, extreme temperatures and industrial accidents are classified as high; floods and open fires as very high.

Moreover, other natural hazards including landslides, liquefaction and water quality issues or climate changes were identified in the 2021 Humanitarian Intervention Plan for Sisak-Moslavina County. These risks have also increased the complexities facing the community thus requiring a comprehensive approach to developing local government-controlled engagement with stakeholders and management procedures within their jurisdiction.

Besides, it is important to take into account socio-economic context, particularly poverty in the Sisak-Moslavina County and its effect on vulnerable communities. When 18.3% of the population live under the national poverty line and the poor are mostly single-person households, elderly people, women and disabled persons; it becomes apparent that poverty and disaster risks intersect. Such figures keenly depict the necessity to mitigate socio economic effects of natural disasters on the society in Petrinja.

In addition, the 2021 Humanitarian Intervention Plan highlighted hazards such as poor local economic conditions, adverse regional political and economic development patterns, falling buying power, and increase in numbers of vulnerable populations. The report also points out the specific problems faced by members of national minorities like Serbians, Bosniaks, Czechs, and Roma with high incidence rates of poverty as well as social exclusion.

This local context analysis based on identified risks therefore forms a foundation for targeted activities and recommendations towards enhancing community involvement through stakeholder engagement and management as well as disaster risk reduction and resilience-building initiatives in the City of Petrinja.



Image 4: Petrinja after earthquake (source: Slavko Midzor / Pixell)

# STAKEHOLDER ENGAGEMENT IN TIMES OF CRISIS

In order to effectively engage and manage stakeholders engaged in activities during the relief and stabilization phase after a natural disaster it is essential that their roles are clear and that their interconnectedness of efforts are streamlined in the same direction.

Local public institutions are crucial during the critical first six months after an earthquake. Local and national public institutions help in creating support after a disaster and accommodating the population in order to stabilize the community.

They should ensure local governance, local resource mobilization, and support to local stakeholders. It is responsible for immediate response with minimal preparations such as offering emergency shelters to the affected population, providing immediate health care response, and securing public safety through assessing the damage of shelter systems and securing environments. Regional agencies and national public institutions would then help in mobilizing resources needed and offer support to ensure

the response is coordinated and well managed.

Another critical stakeholder, the business sector, can also significantly contribute to post-earthquake relief and stabilization and guarantee the continuity of essential services. For example, power and water utility providers, land transport corporations, and companies conduct restorations or maintenance of power lines, water supply systems, and roads. Essentially, this is instrumental for the provision of basic services and easing the movement of rescue teams and supplies to the victims. Furthermore, these companies recover the local economy by reopening their shops, creating jobs, and financing projects induced to return the locals back to their daily earning activities.

Nonprofit organizations are also critical during this period, providing direct relief efforts to cover the pressing needs of the most vulnerable communities following the earthquakes.

**True recovery is possible only through joint coordination of community, private, and public sectors.**

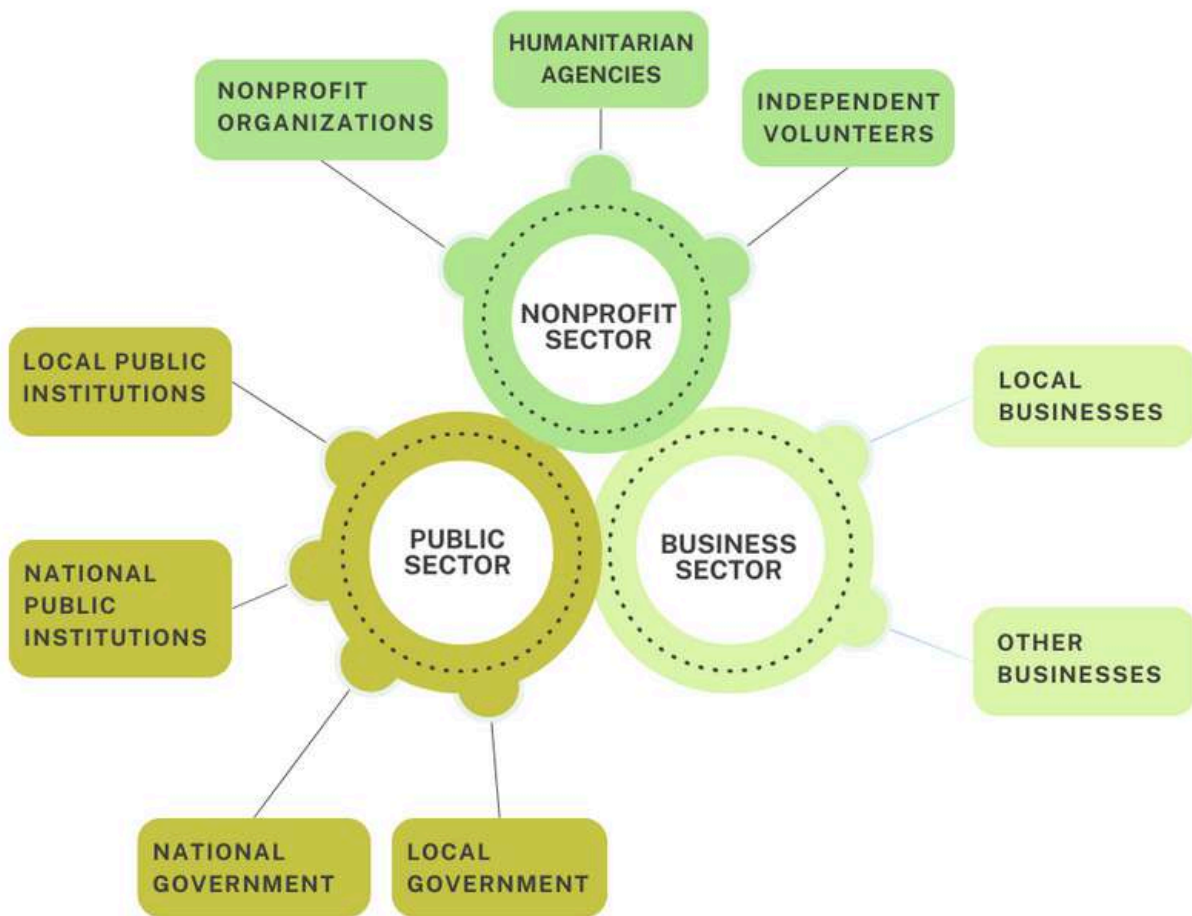


Image 5. Key stakeholders in the times of crisis

Humanitarian agencies, non-governmental organizations, and spontaneous volunteer groups organize resource mobilization, distribution of first aid kits, provision of shelter, food, and medical assistance to the affected populations and families. Nonprofits are crucial in offering psychosocial support, trauma counselling, and helping further the needs of the underserved populations to secure their access to help and care at this stage.

To this end, the joint work and efforts of the mentioned stakeholders, with an emphasis on the local public institutions as a focal point and stakeholder management authority, are vital to achieving the most considerable results and responding adequately to the earthquakes challenges.

Thanks to their unique knowledge and branches, financial and budget lines, and communication and influence, local stakeholders can help mitigate the negative consequences of the earthquake by meeting essential humanitarian priorities. Meanwhile, they can help stabilize the situation and take care of subsequent recovery and resilience efforts.

Although it is strongly recommended that the guidelines for crisis management involving all stakeholders be developed by the public sector, the initiative to establish coordination within an particular sector or cross-sector usually arises out of necessity and is based on preparedness, knowledge, and experience.

# COMMUNITY-BASED DISASTER RISK REDUCTION or COMMUNITY-BASED DISASTER RISK MANAGEMENT

Community-based disaster risk reduction (CBDRR) or community-based disaster risk management (CBDRM) are approaches that aim to involve local stakeholders who have a deep understanding of the main challenges and resources at the local level, and who are encouraged to involve in disaster risk resilience activities and preparedness for potential disasters. Disaster risk reduction aims to make communities more resilient to disasters by taking preventative measures and preparing for potential crises. These community-focused and people-centered approaches foster local ownership, leading to sustainability, addressing local hazards, and maximizing local resources. For effective community management it is crucial to engage and involve local stakeholders in planning, preparation and process development in the early phases.

There are several reasons for CBDRM approach in post-disaster community engagement and management being effective in times of crisis which range from the sense of ownership by the community to the preparedness to implement and stick to

prepared procedures, tools, and management and communication protocols which becomes crucial for timely relief in hours after a disaster. Community engagement is a crucial process that requires flexibility and responsiveness to the needs of the community. The process can be initiated by a variety of groups, including government agencies, nonprofit organizations, businesses, philanthropic entities, and community leaders. It is important to involve diverse community members, leaders, and groups to ensure that representative views are heard. Each community engagement process is unique and requires a tailored approach. The core elements of engagement are understanding the community, establishing and strengthening relationships, planning and preparation, implementation and monitoring, and review and evaluation. These elements may occur sequentially or simultaneously, overlap or merge, and may be repeated during any engagement process. The community or partner may lead different elements, and the time, resources, and focus given to each element may vary depending on the approach used.



Main reasons why these approaches are effective:

1) **Sustainability:** Disaster risk resilience (DRR) can only become part of a community's culture and reduce vulnerability if the community understands the concept of DRR. This requires sustainable and long-term efforts. CBDRR/DRM emphasizes community capacity development and acts as a basis for the success of long-term and sustainable DRR efforts.

2) **Reducing vulnerability to local hazards:** Although large-scale disasters often attract media attention, the impacts of small and medium-scale hazards are greater at the local level due to their frequency. To respond to and prepare for these threats, communities must take the initiative. People are in the best position to reduce risk as they understand local issues, vulnerability, and those who need extra support, such as children, the elderly, and people with disabilities.

3) **Local assets:** Communities can be a great asset to DRR as they understand the hazard pattern and have knowledge from local stories and history of places where assets may or may not be useful. By giving ownership to communities, programs and projects initiated by international organizations and NGOs can also be strengthened and made sustainable.

When thinking of principles of effective community engagement in context of resilience and disasters, international experiences emphasize similar approaches, but these recommendations are in line with Australian Institute for Disaster Resilience [3] who underlines the importance of community-based approach.

Some of the main principles of CBDRR/DRM:

- placing the community at the centre of planning and implementation, because then community engagement is the most effective, responsive and flexible. It shows inclusion, respect, and ethical relationships between engagement partners and the community.

- understanding the local context, from the historical, political to social.

- recognising the complexity and the evolving nature of the disasters and resilience process.

- partnership, based on planning and coordination of all stakeholders.

- communication, based on transparency, inclusion and timing, while taking in consideration strengths, needs and priorities of communities.

- capacity building, to recognise, support and build resilience in advance.

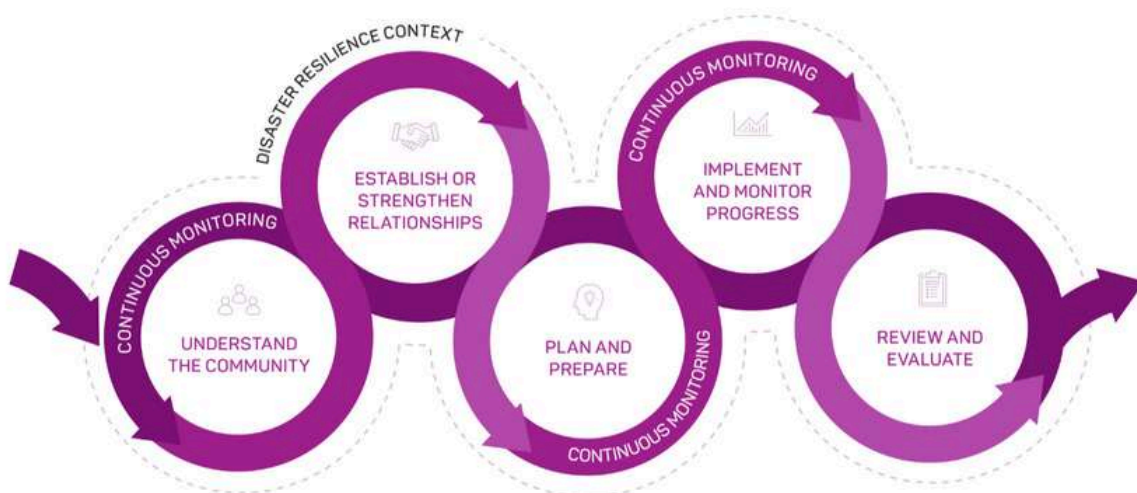


Image 6: Community engagement process (source: Community Engagement for Disaster Resilience)

The importance of community engagement in times of crisis, as well as preparedness for it, is visible in many spheres, from improving cohesion and a sense of belonging, to the opportunity to express their opinion and develop a sense of ownership, through benefits for mental health, to the pride of new social ties and timely adequate help. Only in the joint coordination of the community, private, and public sectors is true recovery possible: "The Fukushima disaster also shows us that the most effective humanitarian response occurs when there is a partnership with the affected communities and coordination with the relevant authorities. Therefore, all local, national, and international actors must play an essential role in increasing preparedness, response and recovery activities." [4]



Image 7: Disaster supplies distribution (source: Novi list / Davor Kovačević)

# LESSONS LEARNED FROM STAKEHOLDERS' ENGAGEMENT AFTER THE 2020 EARTHQUAKE

The City of Petrinja and the wider area received a great deal of support, including financial support from corporate and public donors, volunteers, and material resources. In order to assess the motivation of the stakeholders that provided the support, their cooperation, coordination, and impact the SOLIDARNA Foundation conducted a research in February 2023 on stakeholders who participated in the disaster response effort for the Petrinja earthquake [5]. This chapter points out the most relevant finding for this specific set of guidelines and recommendations. The research has been conducted through a survey and semi-structured interviews and group discussions with relevant stakeholders from the public sector, business community and nonprofit organizations. The research also aimed to identify their experiences and expectations in case of future disasters which are very useful for further local development of stakeholder engagement and management activities. The study showed that both for-profit and nonprofit organizations at the local and national level can be expected to provide significant support in case of a new disaster.

However, to maximize the impact and effectiveness of such aid provision stakeholder highlighted a number of critical points that are in need of development. To be able to manage all the stakeholders that contribute to the

aftermath of natural disasters it is essential to have systems, tools and procedures in place to coordinate and manage it. Communication also needs to be improved to inform and manage the community as well as to regain their trust. In addition, coordination, communication and information sharing between all stakeholders must be established for timely and adequate response to needs. When the response to the crisis after the Petrinja earthquake was analyzed, the interviewees pointed out the tremendous support and direct aid they received from the civil society organizations, especially in terms of long-term, continuous and needs based support to individuals and communities. This timeframe of long-term support should be taken into account in future disaster engagement and management activities in order to maximize their impact. Most of the mapped stakeholders are willing, in the situation of a similar disaster, to take part in providing aid. Most of the stakeholders would connect with the nonprofit sector and ask other experienced humanitarian organizations for guidance on how to help or would act together with others, mostly CSOs but also with the responsible institutions in the field.

**One of the key lessons being the importance of timely needs assessment, and then acting upon it.**

### Local government assessment (N=85)

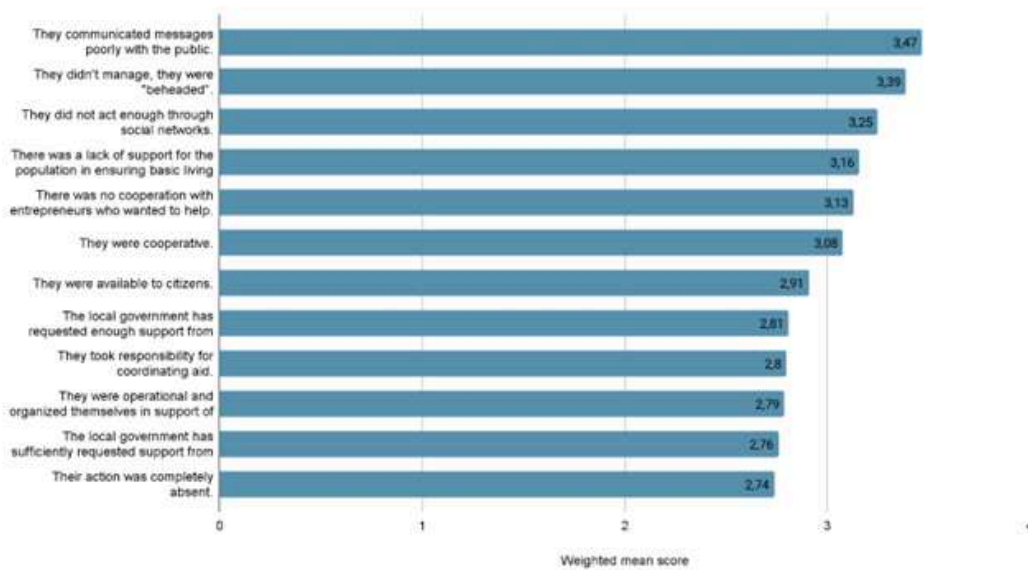


Table 1: Assessment of local government engagement after the Petrinja earthquake (source: Stakeholder mapping questionnaire)

**One of the key findings of the analysis was the benefit of collaborative work, which resulted in a greater and more sustainable impact. The Humanitarian Coordination Forum for the Sisak-Moslavina County is an excellent example of this, which was established within days of the earthquake.**

Civil society organizations, including national and local Red Cross branches, as well as informal civic initiatives formed the Forum. The Forum collaborated with local government units, the local Civil Protection Units, and eventually the national headquarters of the Directorate of Civil Protection. This resulted in a more timely response to the needs of the people affected by the earthquake. The main advantage of the Forum was the needs-based approach with a clear understanding of the situation on the field. Another successful example of working together is the informal civic initiative Sloga, which gathered hundreds of individual volunteers from all over the country who came to help people in the first months following the earthquake.

Additionally, the informal initiative Nindža krovnjače, which is made up of free climbers and alpinists, helped remove 1000 damaged chimneys from family homes in only a week. Many formal and informal organizations and public and local institutions responded to the crisis after the earthquake.

When asking about the ways of providing help, the largest number of the respondents confirmed that their participation in the provision of aid was mainly through cooperation and partnership with other organizations. The numbers indicate that collaborative approach has prevailed in providing crisis relief and community support, including both partnerships and periodic collaboration.

### Future expectations (N=85)

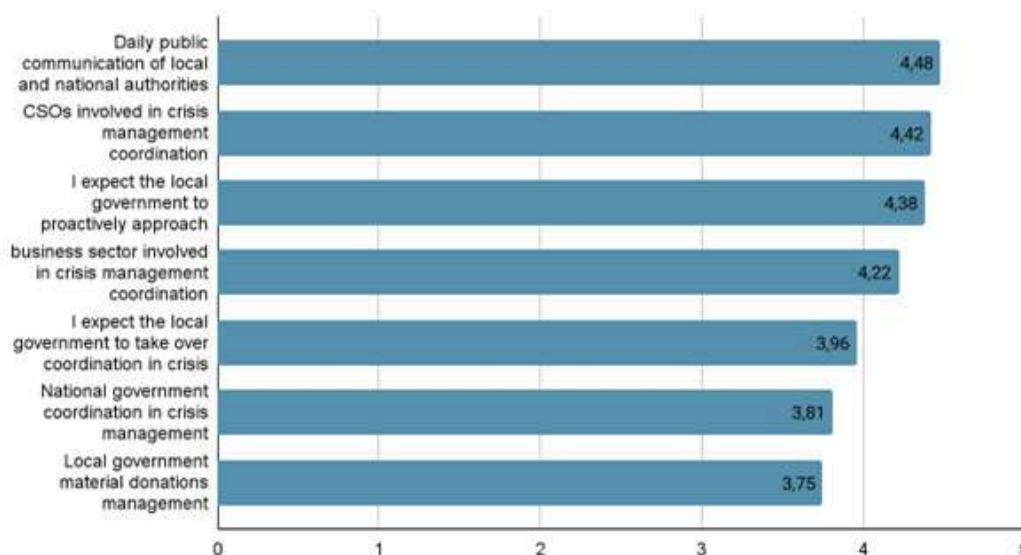


Table 2: Expectations of local stakeholders in case of future disaster (source: Stakeholder mapping questionnaire)

The partnership approach is especially prominent in the nonprofit sector that deals with humanitarian work and support to vulnerable groups, and as partners they list associations which arose from the Homeland War, local educational institutions, emergency services, some of the international humanitarian organizations, public agencies with mandate to organize crisis response and humanitarian organizations operating at the national level.

When asking about the main institutions and organizations of crisis response to the earthquake emergency, most of involved recognized public services and rescue services, humanitarian public organizations, various civil society organizations, associations, and foundations that operate at the international, national, and local levels, religious organizations, and relevant ministries operating in the crisis and entrepreneurs from the area of Sisak-Moslavina County. They also emphasized the importance of the

activities of volunteers and individuals. The needs assessment [6] conducted by the Humanitarian Coordination Forum and research [7] by the association IKS confirms these findings and states the importance of CSOs in providing direct support to individual citizens. The performance of the public services of the local government received most of the critique, which implies that their response in a crisis was not satisfactory, especially in the context of communication.

The findings show that expectations are high regarding regular and prompt public communications of the local and national authorities daily, which was mapped as a top priority. The analysis shows that it was expected from the authorities to include representatives of civil society organizations and the business sector in official coordination of crisis management. Local governments are expected to proactively approach donors and engage in receiving and distributing material donations.



After analyzing the stakeholders' view of the local context, several recommendations were provided to be considered in similar situations. These recommendations reflect the findings of the mapping and are in line with international practices.

Recommendations include: communication protocols, fast-paced reconstruction and provision of long-term housing is assessed as the number one urban development priority,

investment in the DRR with an emphasize on development of local stakeholder coordination, management and communication processes, and standard operating procedures, cross-sector partnerships, investment in community mental health services, etc. The conclusion is that in the case of a new disaster, a great amount of solidarity can be expected from all sectors in providing crisis aid as well as long-term assistance.



Image 8: Nindža krovnjače in Sisak (source: Nindža krovnjače)

## Testimonial of a volunteer: After the earthquake (Croatia /Petrinja)

When I arrived in Petrinja on Monday afternoon, two relatively strong earthquakes had already occurred there. Their magnitude was measured at 5.2, which seismologists consider moderate. Only minor damage was caused - a few broken glasses and overturned vases - and a bit of a shock for the residents. Petrinja is a quiet town in central Croatia with 25,000 inhabitants. I know the place well because my relatives live there: my two cousins were born and raised in Petrinja and I have often visited them there since childhood. I like the city and its surroundings, even if its many bullet-riddled facades and unswept minefields still bring back memories of the 1991-95 war. On Tuesday around noon, my aunt was making coffee, one cousin was still sleeping, and the other was brushing his teeth when the ground, the house and the furniture suddenly started shaking and vibrating with an intensity that no one could imagine.

My cousin rushed out of the bathroom, toothbrush still in his mouth, and called my sister, who ran out of her room in a panic and almost crying. We all hugged each other as the whole house swayed from one side to the other with a violence I never dreamed was possible before Tuesday. Everything we'd been told about how to behave in an earthquake - stand against retaining walls, lie under a sturdy table, stay away from closets, cupboards and staircases - vanished from our minds. Our only thought was to get out of the house because we had the feeling that it would collapse on us at any moment. First, however, we had to drag my cousin's sick grandfather out of his room amid the lamps falling from the ceiling and shelves descending from the walls. We panicked out of the house, barefoot in pajamas and T-shirts; my cousin still had his toothbrush in his mouth. Neither I nor anyone else could say how long we were in the house during the earthquake. According to reports, the first impact lasted 20-30 seconds. When we went outside, we immediately saw the damage done to the house: the chimney fell from the roof, punched a big hole and dragged a lot of tiles with it. Then the ground convulsed again—not as violently as the first time, but we still felt it rise strangely under our feet, accompanied by a distant growl like thunder that seemed to come from the bowels of the earth. During the day, this second earthquake was followed by about 20 more noticeable aftershocks. We visited a 92-year-old man who my cousin had been taking care of since the start of the coronavirus pandemic. The roof of his house was almost completely destroyed, but he himself remained unharmed and under no circumstances wanted to leave his home. He lit a fire in the stove, and the smoke from it went through the gaping hole where the tiles used to be. By now we had already decided to go to grandma's place in Bjelovar, which was untouched. Otherwise, the journey by car takes 1.5 hours. First, however, I had to go to my aunt's house again to try to find my personal documents amid the chaos of partially collapsed walls and overturned furniture. While I was in the house, I felt another tremor. This was very light, but the way the building vibrated again was enough to get me out again as quickly as possible. Outside, I discovered that my cousin's grandmother had arrived. She was at work in a home for the elderly at the time of the earthquake. All the residents there had to be evacuated. Despite our pleas, my cousins' grandparents refused to drive with us to my grandmother's. They said they would rather die in their house than run away. Grandma said that she had already lost her house once, in the war, and that she would not allow it to happen again. Their plan was to stay in the basement. If the ground starts moving again, they'll get in the car, they promised. No matter what we tried, they did not give up their intentions. My aunt says she doesn't know when or how she and her family can return home - or if they can ever feel safe in their house again. Experts predict that there will be more earthquakes, but no one knows how strong and frequent they will be, nor when the series will end. This uncertainty and the fear and feeling of helplessness that it carries will haunt the people living in central Croatia for a long time. Moreover, this is an area where many poor people live who have now lost what little they had and where almost no one has insurance to cover earthquake damage.

Now I'm flying home to Cologne, Germany, to safety. It's a strange feeling to leave your family in Croatia to fend for themselves. I have fond memories of summer vacations with my relatives in Petrinja. But the most memorable of all is certainly my stay in the past few days.



Image 9: Volunteers in Petrinja (source: Nindža krovnjače)

There are interesting examples of self-organized engagement of elderly people, mostly women, who in times of disaster suffer from isolation. In the city of Ishinomaki, an elderly lady in her 60s decided to encourage her elderly neighbors to interact with each other through gatherings she organized in her home while drinking tea: “I have been opening my house that had been repaired after the disaster, to the community to organize a gathering of elderly from the neighborhood. Through these gatherings, I hear about when the disaster hit and find myself learning something new for the first time. For example, how our cat was doing. I realized the importance of interaction with neighbors including checking on each other by saying something.” [8]

# GUIDELINES ON SECTORAL ROLES, STRENGTHS AND OPPORTUNITIES

## Public sector

Coordinating immediate response efforts requires the participation of local public agencies including emergency management departments and municipal authorities. It should coordinate meetings of all stakeholder involved in relief efforts and supervise stakeholder communication channels to ensure a prompt and organized response to the earthquake's aftermath.

After an earthquake the local law enforcement agencies and fire departments are responsible for ensuring public safety and security. This is crucial. In cooperation with rescue services they carry out search and rescue operations, supervise evacuation procedures and enforce safety protocols to avoid any additional damage caused to residents or property.

Local government agencies in cooperation with nonprofits provide shelter and housing to earthquake-displaced individuals and families. For people at risk the process involves establishing emergency shelters collaborating with community centers or schools to provide housing and making it easier for people to access safe accommodation.

Provision of essential medical services including response to medical emergencies and treatment of injuries is provided to earthquake survivors by local public health facilities. They are working together with hospitals, clinics and medical staff to address various health care needs including trauma care, mental health support and disease control measures in shelters. After the 2020 earthquake the General hospital Dr. Ivo Pedisic in Petrinja played a crucial role for the whole county in providing medical care and assistance as other health institutions were heavily damaged.

Local government offices and public information officers use information and communication channels to communicate with the community about emergency procedures, safety guidelines, available resources and evacuation routes. Residents can stay informed during crisis times with clear timely communication. This has been assessed by stakeholders as a critical point for improvement. Responders receive assistance from social services and community organizations that offer support programs for those affected by the earthquake. For example providing food assistance financial support counselling and the use of social workers or case managers for immediate and long-term needs.



Coordinated response relief and recovery programs are made possible through the collaboration between local government agencies, nonprofit organizations, businesses, and informal volunteer groups. Their activities need to be well coordinated to maximize community support and resilience initiatives. The Coordination of Humanitarians for the Sisak-Moslavina County presents a tested good practice which has been initiated by the civil society but the model can be elevated from an informal to a formal local coordination body.

Local governments undertake long-term recovery planning and resilience-building initiatives to rebuild infrastructure, improve disaster preparedness and minimize future risks which include a long-term recovery strategy. They include working with urban planners, engineers, community stakeholders and regional partners to develop recovery plans that prioritize sustainable rebuilding and community resilience. Specific recommendations for resilience-building initiatives have been described in the “Recommendations on Croatian Post-Earthquake Resilience Building Activities” document.

For public sector entities to foster partnerships and collaborations across different sectors of the economy, they must invest in capacity development that taps into the strengths and resources of every stakeholder involved so as to maximize the effectiveness of relief programs and increase community’s resilience. Local government agencies have the opportunity to allocate resources, personnel and finances based on needs assessments, risk analyses and priority areas in order to ensure proper use and provision of any kind of support.

All this is achieved by the public sector through multi-agency coordination frameworks, task forces or emergency response teams which enable sharing of information among various stakeholders with a common purpose for coordinated action plan making. Another important role done by the public sector is regulatory oversight in infrastructure restoration, quality control during construction projects or service delivery after an earthquake ensuring compliance with safety standards, environmental regulations, ethical practices etc. This means that government agencies should also invest in capacity building programs such as training workshops for stakeholders from all sectors who are involved with disasters since this will equip them with skills and knowledge necessary for effective collaboration in disaster response, recovery planning as well as long-term resilience.

Organizations also launched several artistic initiatives, such as "Arts for Hope", which actively worked to protect the mental health of communities that survived the disaster through creative expression. The initiative worked in collaboration with medical, art, and educational experts and youth groups and used art as a therapeutic and communication tool, to create a safe place to talk and empower emotional balance. Another artistic program, the Tohoku theater project, was developed in partnership with local organizations, precisely to better understand the needs of the local community and the people who will participate. The theater was a tool “to create safe environments for open dialogue about the difficult issues facing communities from Tohoku.” [9]





Image 10: Creative activities run by ADRA Croatia in housing container camp in Glina (source: private archive)

## Business sector

As the backbone of the economy the business sector possesses significant financial resources, material assets, and logistical capabilities that can be mobilized quickly to support relief and stabilization efforts after an earthquake. The business sector's adaptability, innovation culture, and ability to pivot quickly in response to challenges can lead to the development of new technologies, business models, and strategies that improve disaster response efficiency and effectiveness in local communities.

One of the key roles of businesses is the role it plays in rebuilding infrastructure. They repair and build power lines, water systems, roads, and communication networks. As a result, they assist in the recovery of the affected areas through reestablishing essential services. Businesses excel in supply chain management, procurement, and distribution, ensuring the efficient delivery of emergency supplies, equipment, and resources to affected communities during the relief phase and beyond.

Local businesses play a crucial part in reviving the economy by reopening, hiring more workers, and boosting spending. This means getting factories back up and running, and opening up stores again. All of these things help people and communities get back on their feet and become financially stable again. Local businesses particularly contribute to reopening the economy, and the way they do so is by reopening their operations. The formulation simply refers to getting the factories and stores up and running. Financially, the businesses are likely to donate funds, give in-kind, or volunteer to stabilize the situation. In this case, locally businesspeople can donate money directly to help humanitarian organizations, donate material or equipment to speed up the rebuilding process, or sponsor community efforts to recover the communities socially and economically.

Environmental services and sustainability-focused companies help mitigate the adverse environmental outcomes of earthquakes. They recycle and help in waste disposal, assess environmental effects, employ an eco-friendly strategy to recover and clean up which reduces long-term environmental destruction.

Also, one of the most prevalent mechanisms by which businesses can help the influenced community is through involvement in community outreach, volunteer work, and corporate social responsibility. This may imply requesting the participation of the general public in the cleanup and restoration of impacted places or offering expert abilities or resources in response to particular demands or partnering with numerous other non-governmental organizations, community, and development agencies.

Businesses have internal knowledge that can be utilized by other organizations working directly with members of the community, such as tweaking the supply chain to the victims, financial management of donations, warehouse management, internal and external communications. In the case of the 2020 earthquake businesses were keen to help with their know-how but they need to be engaged and managed in a transparent and efficient manner so that their contributions make a difference. It is critical to have in mind while developing partnerships and protocols that businesses often have established communication channels, customer bases, and outreach networks that can be utilized to disseminate critical information, safety guidelines, and resources to the community during and after an earthquake.

As part of a community-based approach in preparations for disasters, collaboration between the public and private sectors, as well as the civil society through Public-Private Partnerships (PPP) can leverage combined resources, expertise, and capabilities to implement comprehensive disaster response, recovery, and resilience-building strategies in local communities.



Communities also worked to meet the basic needs of life to the extent possible, including sharing food with others. Such activities were often based on the cooperation of the business sector and communities, and a similar experience was recorded after the earthquake in Sisak-Moslavina County when a local baker whose business was not damaged opened his branch the day after the earthquake and distributed bread for free, or self organized initiative of restaurant chefs who came from different parts of Croatia to cook for citizens of Petrinja. The observations of a local entrepreneur in Minamisanriku highlight the role of this community-led initiative. “There were more than 1,000 cakes in the fridges at the time of the disaster. The next morning I took them to the rescue center. When I saw people hurrying to help with the recovery work, carrying a piece of cake with them as they had no time to stop and eat, I felt deeply connected to my community.” [10] It is precisely this form of solidarity through sharing the necessities of life, giving of oneself for others, contributing to social connection and understanding, and in some way contributing to alleviating the feeling of social isolation.



Image 11. Chefs from all parts of Croatia cooking on a main square of Petrinja for humanitarians and citizens (source: Sasa Buric / Cropix)

## Nonprofit sector

Nonprofit organizations are instrumental in distributing food, water, shelter, hygiene items and medical supplies to communities experiencing severe humanitarian needs. They also play a crucial role in providing emergency response and relief. They operate emergency shelters, mobile clinics and distribution centers to meet immediate basic needs.

Non-profit organizations conduct comprehensive needs assessments to identify the specific needs of vulnerable individuals and advocate for appropriate support. Promote the involvement of underprivileged communities, advocate for policy changes and collaborate with government agencies and other entities to fill in gaps in relief efforts.

Nonprofits often have strong bonds in their immediate communities which makes them able to tap into resources, volunteers and networks of support quickly after a natural disaster. The nonprofit organizations seek volunteers from the community and other areas for a range of relief and recovery activities. For search and rescue debris clearing or shelter management as well distribution tasks and other support services volunteers receive training orientation and coordination from them.

Nonprofits help communities and small groups become stronger and better at handling disasters. They provide teaching, workshops, and classes on getting ready for disasters, first aid, quick response plans, and making communities stronger. Some nonprofits work on long-term projects to fix and build infrastructure after disasters. They work with local leaders, engineers, and construction experts to make sure rebuilding efforts are safe and strong. They aim to rebuild homes, schools, healthcare places, and community structures hurt or ruined by the earthquake.

In comparison to government agencies, it is easier for nonprofits to quickly respond

effectively towards a changing context after an earthquake since they are more capable of being agile. Many nonprofits concentrate on responding to disasters, giving humanitarian assistance or providing social services which calls for specialized knowledge and skill set that is required in dealing with various needs while stabilizing victims. Nonprofit organizations often use creative and new approaches when addressing complex challenges, exploiting technology, devising sustainable solutions and developing social innovation not just for providing relief but also aimed at long term recovery efforts and resilience-building activities. After an earthquake, nonprofit organizations excel at mobilizing locally and internationally based volunteers who contribute time, skills and passion towards relief operations. Non-government organizations (NGOs) fight for the rights of excluded groups, make their sound louder, and employ inclusive methods in relief programs to ensure that the disadvantaged are given enough support and notice. NGOs involve state institutions, commercial enterprises, colleges and universities with other stakeholders in applying resources together, sharing information and organizing disaster management across the board. NGOs do fundraising activities, write proposals for grants as well as work with donors to obtain financial aid which is used in funding social programmes, building infrastructure projects or rebuilding communities.

Mental health nonprofit organizations, counseling organizations and psychosocial support providers are very important in healing the emotional and psychological effects of earthquakes on people, families and communities. It provides coping mechanisms and resilience building programs for emotional processing. Nonprofits build capabilities for disaster preparedness, response capability building and long-term resilience among local communities, organizations and institutions; thus contributing to sustainable development as well as risk reduction in earthquake prone areas.

**The Humanitarian Coordination Forum for the Sisak-Moslavina County** is an exquisite example of multi-sectoral stakeholders engagement, established on January 8, 2020 only a couple of days after the Petrinja earthquake. It was established on the initiative of humanitarian responders with the aim of achieving joint cooperation between local and national civil society organisations and informal initiatives of volunteers providing humanitarian response to the needs of the population affected by the earthquake in Sisak-Moslavina County, and in direct coordination with local and national authorities. The main mission was to provide timely needs based aid while understanding the context of the local community and situation on the field, but also to share resources and information. In the first year, the Forum consisted of around 50 members, with having a representative joining the meetings of the local Civil Protection Units and the national headquarters of the Directorate of Civil Protection. The Forum became a partner of the main post-earthquake national coordination body, with which it successfully cooperated in eliminating the consequences of the disaster caused by the earthquake in the area of the Sisak-Moslavina County. In cooperation with state administration bodies and other public institutions and nonprofit organizations, the Forum published the Humanitarian Intervention Plan and elaborative Needs Assessment for the Sisak-Moslavina County.

This example of joint action resulted with a clear insight into the situation and needs in real-time, quick and adequate assistance, complementary use of resources and direct communication with beneficiaries, and ultimately developed strategic documents based on needs of the community. Due to a specific social and ethnic situation of the area, special attention was given to vulnerable groups, such as national minorities, people with disabilities and elderly citizens.



# RECOMMENDATIONS ON COMMUNITY ENGAGEMENT AND MANAGEMENT

This set of specific recommendations are based on the overview of key stakeholders (public, for-profit, and nonprofit) involved in post-earthquake intervention and rehabilitation activities done in 2023.

1. **Investment in the development of local stakeholder coordination, management and communication processes**, and standard operating procedures in order to be able to adequately address short- and long-term needs of citizens, nonprofits and businesses in case of a new disaster. These procedures should be developed via a participatory approach, where different, already tried tools and models, can be implemented. It is crucial to follow the needs and specifics of the community, and to invest in equipment and infrastructure support and strengthen coordination mechanisms between local government agencies and humanitarian organizations.

2. It is essential **to invest in disaster management software**, either by developing one or utilizing an existing one from the market so that information on individual needs of citizens can be shared amongst stakeholders working directly with end beneficiaries. The software has to be available for all the coordinated stakeholders in order to share information that will not be unnecessarily doubled through different softwares and

systems. It is important to adapt the system to be compliant with the General Data Protection Regulation (GDPR) by establishing different levels of access, protocols and cooperation mechanisms and formal agreements. The system has to be user-friendly, flexible, scalable, and potentially integratable with other platforms. Because of the local technological context of Sisak-Moslavina County and the insufficient distribution and quality of the internet network the system should definitely be cloud-based.

3. **Timely partnership development** is vital for effective and sustained community crisis response. As most of the post-earthquake assistance has been conducted through different levels of cross-sector partnerships, providing opportunities for partnership development through different sectors catalyzes a greater impact of disaster relief support. It is needed that long-term supporters can actively and effectively exchange information and coordinate but also provide opportunity for targeted involvement of one-of donors and initiatives. It is most important that the municipality in cooperation with other public and private organizations develop different disaster response scenarios in order to properly develop the above-mentioned capacities. The local government can provide basic infrastructure for partnerships, such as

work spaces or easy access to data as well as seed funding for piloting social innovation. When it comes to the effectiveness of multi-sector partnerships it is crucial that a number of factors are aligned amongst partners. Those factors include: shared ethics, values, and morals, organizational alignment of goals and expectations, and open collaboration and openness towards learning and innovation.

**4. Transparent and open communication by the local government** is key to

overcoming the crisis, for timely and adequate aid, and important fact-checked information. Public-Private Partnerships are a good model for establishing communication protocols and for the utilization of media, social media, and other channels of communication. The communication protocols need to be developed participatory with other stakeholders so that clear, and unequivocal information is distributed to the citizens. It is crucial that communication is followed by coordination between all the sectors and stakeholder groups.

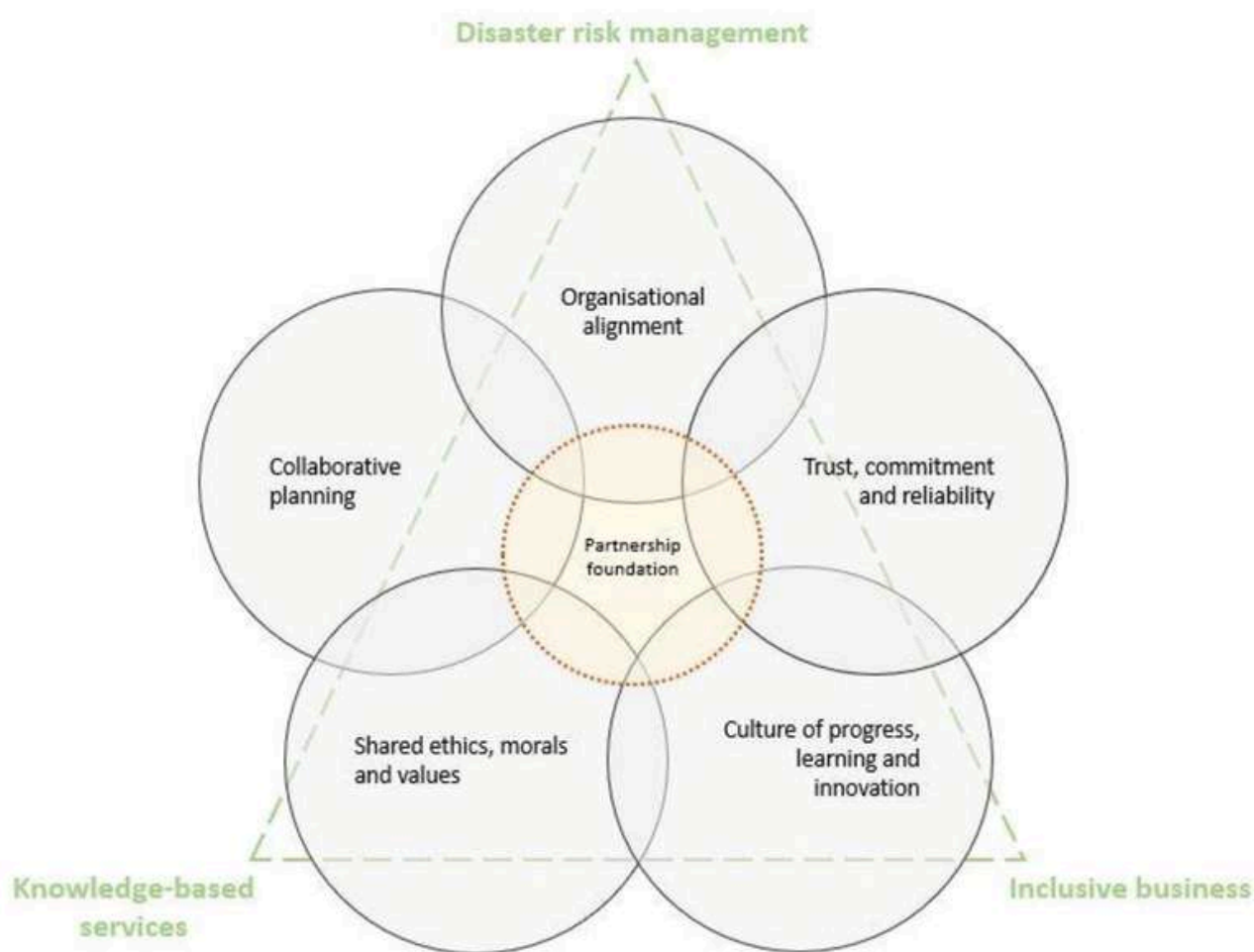


Image 13. Conceptual framework for cross-sector partnerships in disaster management (source: Cross-sector partnerships in disaster risk management: A case study in Ghana)

**5. Investments in community mental health services** is a crucial element not just in the disaster relief phase but as well as long-term resilience building by provision of services through different models and by a number of stakeholders. After the 2020 earthquake volunteers and professionals were engaged in providing psychological support to individual citizens but that support was provided in a too short period so that many citizens didn't manage to cope with the psychological effects of the trauma caused by the disaster. By enhancing the resilience of the vulnerable population the provision of first aid relief becomes much easier and long-term mobilization in public administration processes more proactive. In order to enhance citizens' ability for self-help and mutual-help provision after a disaster it is essential to provide tools and coping mechanisms early on.

6. In the aftermath of a disaster it is critical to conduct thorough **an emergency needs assessment** which will help with understanding the situation and the priority needs, define potential response options, and determine the type of support that is required. When conducting needs assessment it is crucial to take in consideration the specificity of affected communities and to respect their cultural, social and demographic variety. It is recommended to follow phases of assessment, which include initial or crisis assessment within 48 hours from the disaster, rapid assessment within the first week to develop an operational strategy and budget for the response, followed by in-depth detailed review in each humanitarian sector (shelter, health, food, etc.) within 40 days.

7. In order to meet the urgent needs of the affected community it is important to develop a flexible, but plausible, **humanitarian intervention plan (HIP) through a participatory approach**. The main purpose of the humanitarian intervention plan is to develop a streamlined roadmap for provision of support to the most vulnerable members of the affected community, as well as to provide first response regarding the basic life needs in the first days, followed by provision of funding to humanitarian partners for response to crisis, and allocation of capacities and resources for provision of emergency services. While conducting HIP it is important to have in mind results of the emergency needs assessment and to base the approach on cross-sector cooperation of all stakeholders. The completed plan will serve as guidelines for the effective and timely action of all involved with the aim of helping the ones in need.

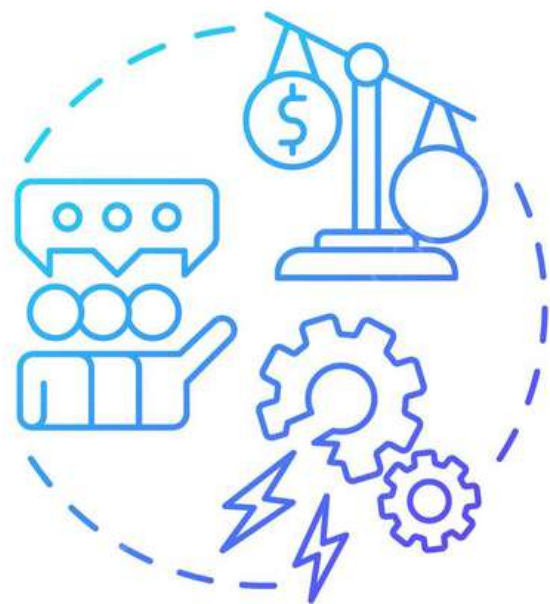


Image 12. Crisis management

# CONCLUSION

In the wake of the devastating earthquakes that shook the foundations of the Sisak-Moslavina County, especially impacting the resilient city of Petrinja citizens, the business sector, and the civil society invested time, money, and other resources to help the victims. Their impact in the communities was tremendous and in case of another natural disaster we can expect that such solidarity will be shown again.

This document outlines the roles, strengths, and guidelines for effectively engaging and managing all the stakeholders involved. Rooted in international best practices, particularly drawing from Japan's rich experience in disaster management, a set of easy-applicable recommendations provide priorities for investments for the City of Petrinja to prepare the needed infrastructure, tools, procedures, and protocols to be implemented right away or just right after a crisis hits the community.

The recommendations presented here focus on the local context of Petrinja but are adaptable to other communities throughout the Republic of Croatia. The approach is centred on a community-based and people-centric and inclusive perspective. It is crucial to recognize that stakeholders have the willingness, expertise and resources to invest in the communities resilience and preparedness for the next disaster.

# Addendum 1.

## ADDITIONAL PRACTICAL RECOMMENDATIONS FOR CITIZENS

The active involvement and role of individuals within the community in earthquake preparedness, response, and recovery efforts is vital for decreasing potential losses and acting in solidarity. By taking these preventive measures and actively participating in recovery efforts, citizens can significantly contribute to reducing social, economic, and health damage caused by earthquakes and ensure a safer and more resilient community.

### Emergency Preparedness:

**Build an emergency kit:** Create an emergency kit stocked with essential supplies like food, water, medications, and first aid items. Include necessary items for family members with special needs, such as infants, elderly, or individuals with chronic illnesses.

**Secure your home:** Understanding the structural integrity of buildings is vital. Conduct a seismic assessment of your home and reinforce any potential hazards like tall furniture, heavy objects, or unsecured appliances. Secure shelves, cabinets, and water heaters to prevent them from tipping over during an earthquake.

**Prepare an emergency plan:** Create a family emergency plan that includes communication strategies, meeting points, and essentials such as food, water, and medical supplies. Practice earthquake drills with your family to ensure everyone knows what to do in case of an earthquake.

**Plan evacuation routes:** Identify safe evacuation routes from your home, workplace, and other frequently visited places.

Mark alternative routes in case primary routes are impassable.

**Establish communication plans:** Establish a communication plan with your family, friends, and neighbours, including an out-of-town contact person. Determine how you will communicate and regroup after an earthquake.

**Practice fire safety:** Learn how to use fire extinguishers and locate emergency exits in your home or workplace. Fire hazards can be common after earthquakes due to gas leaks or electrical problems.

**Stay informed:** Stay updated on the latest information regarding earthquake preparedness, early warning systems, and evacuation plans. Follow official channels and local authorities for accurate and timely information.

**Educate yourself:** Attend workshops or training sessions on earthquake preparedness, response and first aid. Learn basic life-saving skills, including CPR, in case of emergencies. Be prepared to help others during a crisis.



## Post-Earthquake Safety and Recovery:

**Assess immediate surroundings:** After the shaking stops, be cautious of potential hazards such as damaged buildings, weakened structures, fallen power lines, and ruptured gas lines. Stay away from damaged areas and follow instructions from local authorities.

**Personal Safety:** Follow instructions from emergency responders, avoid unnecessary risks, and be aware of hazards such as falling objects, compromised structures, and ruptured gas or electrical lines. Stay away from coastal areas if a strong earthquake occurs, as it may trigger a tsunami.

**Aftermath and Aftershocks:** Earthquakes can cause significant damage and may be followed by aftershocks, which are smaller tremors. It is important to be cautious after the main earthquake, as aftershocks can cause additional damage to already weakened structures. Follow instructions from local authorities and listen to emergency alerts, in case of a stronger aftershock don't forget to Drop, Cover, and Hold On. Drop to the ground, take cover under a sturdy piece of furniture, and hold on until the shaking stops.

**Check on others:** Check on your family members, friends, and neighbours to ensure their safety and well-being.

Offer assistance to those who may need it, especially vulnerable individuals such as the elderly or people with disabilities.

**Report and document damages:** Report any damages to your home, public infrastructure, or utility services to local authorities. Take photographs or videos of the damages for insurance claims.

**Follow health guidelines:** Follow any health-related guidelines set by authorities, such as using masks in dusty environments or avoiding contaminated water sources. This will help prevent health issues and the spread of diseases.

**Psychological and Emotional Well-being:** Recognize the emotional and psychological impact of earthquakes. They can be traumatic events and may cause anxiety, stress, and fear. It is important to seek support from mental health professionals or community resources to cope with emotional distress.

**Support the community:** Volunteer or contribute to relief efforts organized by local charities or organizations. Help in distributing supplies, providing shelter, or offering assistance to those in need.



# Addendum 2.

## ADDITIONAL PRACTICAL RECOMMENDATIONS FOR BUSINESS SECTOR

Position of the business sector plays one of a vital roles in post-earthquake recovery, on one hand in providing resources to assist humanitarian responders, while on the other hand continuing with its work providing economic stability. Therefore, along with earlier given recommendations on preparedness in documents on disaster risk resilience, several other documents could be developed following an earthquake incident in order to prevent difficulties for businesses and affected communities.

These recommended documents could be essential for effective coordination, communication, and decision-making in the aftermath of an earthquake, and can help facilitate a swift and efficient recovery process for affected communities. Some of these documents include:

**Emergency Response Plan:** An outline of the emergency response procedures to be followed during and after an earthquake, including roles and responsibilities of different stakeholders, communication protocols, evacuation routes, and emergency contact information.

**Damage Assessment Report:** A detailed assessment of the damage caused by the earthquake, including structural damage to buildings, infrastructure, and utilities, as well as an estimation of repair and recovery costs.

**Shelter Management Plan:** A plan outlining the management of emergency shelters for displaced residents, including location, capacity, registration procedures, and support services provided.

**Communication Plan:** A communication strategy for disseminating information to the public, media, and stakeholders during and after the earthquake, including regular updates on response efforts, safety instructions, and recovery progress.

**Recovery and Reconstruction Plan:** A roadmap for the long-term recovery and reconstruction efforts following the earthquake, including prioritization of projects, funding

sources, community engagement strategies, and monitoring and evaluation mechanisms.

**Earthquake Incident Report:** A summary of the key findings and actions taken in response to the earthquake incident, as well as any ongoing needs or challenges faced by affected communities. This report includes facts on earthquake, date, time, location and magnitude, impact assessment, response and emergency measures, information on evacuation and emergency measures, evacuation and sheltering, search and rescue operations, damage assessment, health and safety concerns and recommendations.

**Lessons Learned Report:** A report documenting key lessons learned from the earthquake incident, including strengths and weaknesses of the response efforts, challenges faced, best practices identified, and recommendations for future preparedness and response.

**After-Action Review (AAR) Report:** A report that summarizes the actions taken during the response to the earthquake, evaluates the effectiveness of those actions, and identifies areas for improvement in future emergency response situations.

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