



Ways to recover from disasters - Research-based recommendations

POST-EARTHQUAKE TEMPORARY HOUSING IN ITALY

GENERAL INFORMATION ABOUT THE CASE STUDY



The BuildERS project seeks to increase the population's resilience to different sorts of disasters by offering helpful insights on how to enhance governmental policy in this area. It targets the most vulnerable individuals in particular and seeks to lessen their vulnerability and boost their resilience.

Figure 1: Earthquakes in 2009, 2012 and 2016 in Italy

The Italian case study contributes to the overall goals of the project by studying the vulnerabilities of individuals housed in temporary solutions after disasters. The three most important and recent earthquakes in Italy were chosen as disaster examples: the 2009 earthquake in Abruzzo, the 2012 earthquake in Emilia, and the 2016-2017 earthquake in Central Italy. These disasters yielded respectively 67,000, 45,000 and 49,844 evacuees from their homes who found accommodation in temporary shelters - a solution that lasted, sometimes, for years.



Figure 2: Temporary housing solutions

The study aims to reduce the vulnerability of people displaced in temporary accommodation and increase their resilience by identifying which factors improve post-disaster management and which policy tools are the most appropriate to improve the condition of all members of society.

The University of Trento and the Civil Protection of the Autonomous Province of Trento developed a quantitative survey targeting three populations affected by the post-earthquake crisis, one in the Abruzzo region, one in the Emilia region, and one in central Italy. A total of 257 individuals completed the survey.

Through this study, many different predictors of life satisfaction of people displaced in temporary housing solutions were examined to understand what makes people more satisfied and resilient.

Location	Experienced Seismic event	Population at the time of the event	Number of evacuated (tentative number)	Number of participants in the study
Visso	2016 Central Italy Earthquake	1107	1107	3
Camerino	2016 Central Italy Earthquake	7013	7,5	1
Ussita	2016 Central Italy Earthquake	444	444	9
Amatrice	2016 Central Italy Earthquake	2657	2657	12
Accumoli	2016 Central Italy Earthquake	616	580	12
Monte Reale	2016 Central Italy Earthquake	2581	not available	8
Carpi	2012 Emilia Earthquake	67355	3571	18
Cavezzo	2012 Emilia Earthquake	7359	2029	24
Concordia sulla Secchia	2012 Emilia Earthquake	9092	1878	17
Finale Emilia	2012 Emilia Earthquake	16111	2,77	21
Mirandola	2012 Emilia Earthquake	24769	6665	34
Novi di Modena	2012 Emilia Earthquake	11504	5008	5
San Felice sul Panaro	2012 Emilia Earthquake	11238	3145	15
Crevalcore	2012 Emilia Earthquake	13719	1829	14
Reggiolo	2012 Emilia Earthquake	9272	893	1
L'Aquila	2009 L'Aquila Earthquake	68247	10959	32
Poggio Picenze	2009 L'Aquila Earthquake	1,07	1,07	1
Lucoli	2009 L'Aquila Earthquake	1,7	1,7	13
Fossa	2009 L'Aquila Earthquake	700	700	17
Total		253784	41465	257

SUMMARY OF KEY FINDINGS

The analysis of the data collected in the Italian case study revealed four key findings:

1. The quality of life during displacement had an impact on the quality of life measured today that goes beyond that of the quality of life before the event. This means that the experience faced by the evacuees was so profound that it affected their lives even at years of distance.
2. Evacuees showed a significant decrease in their quality of life, more symptoms of post-traumatic stress disorder, higher health impairment, lower well-being, higher economic vulnerability, higher physical vulnerability, and higher risk awareness than their non-evacuees counterparts. These findings show that the crisis-affected populations are psychologically fragile, especially if they have been displaced from their home.
3. The closest predictors of the quality of life during displacement were the satisfaction with specific aspects of life during displacement (social life, working life, etc.) and the perceived quality of the temporary housing (space, light, noise, insulation, etc.). Especially the lack of personal space, the environment surrounding the house, and the place where the house was located emerged as critical factors. This means that a relevant improvement in the personal life satisfaction of the evacuees during displacement can be achieved by ameliorating these aspects of the temporary housing experience.

4. Evacuees' vulnerability originated from intrinsic characteristics: evacuees that possessed a lower individual resilience capability before the crisis were also more likely to be under-prepared when the disaster occurred, and this, in turn, led to a lower satisfaction of life during displacement and slower recovery from the crisis. This means that a lot can be done to improve post-crisis disaster resilience by investing in the personal human characteristics of the citizens in times of peace.

5. Those evacuees who held less emotional and social bonds with their community at the time of the disaster were also less satisfied with their life during the displacement and were slower in recovering from the temporary housing negative experience. This means that fostering strong social and emotional bonds with the community is a protective factor in case of crisis and improves the recovery of crisis-affected populations.

POLICY RECOMMENDATIONS

The study's findings led to the development of five recommendations for enhancing post-disaster management with an emphasis on vulnerability.

1. *There is a **need for continuous post-disaster management***: survivors who have been displaced need to be assisted by their institutions for a long time after the emergency has ended, at least until they are relocated to a permanent community. Providing a temporary shelter is not enough to heal the deep wound inflicted by the negative experience of being displaced from one's home and community and living a life suspended in a temporary shelter with no clear idea of a time horizon in which this will end.
2. **Avoid displacing people in temporary housing for more than one month.** Being displaced for more than one month from one's home is a highly disruptive and stressful psychological experience that goes far beyond simply experiencing the disaster.
3. **Design social interventions to improve citizen's human capabilities to react to crises**, such as personal resilience. Social support and community bonding can be improved through group-based peer support interventions to promote developing individual resilience capabilities.
4. **Relocations should be well prepared and well designed in advance.** Displacement sites should seek to replicate the lost community environment or be located in such a way that the original community environment is preserved and easily accessible to residents.

5. **Increase citizen involvement in crisis management and planning.** Creating opportunities that provide diverse chances for meaning-making by different user groups and municipalities motivates citizens to increase their proactivity in disaster preparedness. Improving community ties is a strong protective factor for improving disaster resilience.



IMPLICATIONS REGARDING SOCIAL AND TECHNOLOGICAL INNOVATIONS

The findings and suggestions have important implications regarding social and technological innovations for the post-crisis management of vulnerable individuals.

- ***The individual vulnerabilities should be considered in tools devoted to post-disaster planning:***

Technology tools used to harmonize distribution management in temporary solutions, such as DESIGNA (https://www.eucentre.it/wp-content/uploads/2020/02/Seminario-DESIGNA-12_2_2020.pdf), could be improved in light of the survey results. For example, some fields could be added to the tool indicating the specific vulnerabilities of individuals to facilitate transferring those specific individuals to facilities that can handle those vulnerabilities. This would result in more careful handling of vulnerabilities during the management of temporary housing. As these technologies have applications at the national level (regions-municipalities-hotels), this would result in a concrete impact on vulnerability management. To this aim, simple immediate and early (e.g., age, education, marital status, etc.) indicators of vulnerability (e.g., low individual resilience capability) should be created and implemented in the tools.

- ***The satisfaction with the temporary solution should be considered in tools devoted to post-disaster planning. Current tools could be made interactive to improve citizen-institution communication during post-disaster management and improve the resilience of more vulnerable evacuees:***

Some modifications to the existent technological tools could include an interactive function that allows citizens to report their level of satisfaction with the temporary solution they were provided with. This might help post-disaster planning in many ways: first, more psychologically vulnerable citizens might perceive to be part of the community, thus increasing their perceived support and social capital, which in turn, increases their resilience capabilities, second, their needs could be captured in real-time, and institutions could promptly address them relocating to better solutions, when possible.

- ***Guidelines for population assistance should be implemented that consider how to handle situations of vulnerability during post-disaster management:***

There are currently no common and universally adopted guidelines in Italy for post-disaster emergency management. It would be appropriate to create them and include specific sections for vulnerability management.

- ***Bylaws issued after the disaster should offer incentives to displace more vulnerable people in specific solutions:***

For example, incentives could be allocated in such a way that more psychologically fragile and socially isolated individuals could be addressed to hotels, where they might find more support from the community, while more structured and psychologically robust families could be allocated to isolated houses, where they can benefit from more privacy and and more protected spaces.